McMILLEN ENGINEERING

CIVIL ENGINEERS

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NEMACOLIN WOODLANDS RESORT CASINO

TRAFFIC IMPACT STUDY AMENDMENT

Wharton Township, Fayette County
Pennsylvania

November 2006

Prepared for:
NWL Company
1001 LaFayette Drive
Farmington, PA 15445

Prepared by:
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115 Wayland Smith Drive
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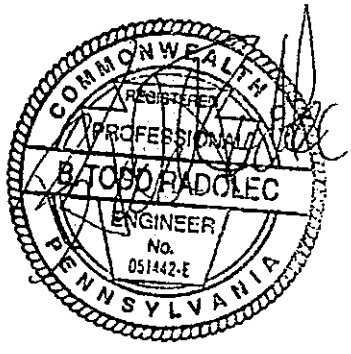

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REFERENCE MATERIAL

1. Highway Capacity Software (HCS+) Release 5.2 – University of Florida.

2. Chapter 201 Engineering and Traffic Studies, Title 67 of the Pennsylvania Vehicle Code, Transportation, Pennsylvania Department of Transportation, December 1993.

3. Highway Capacity Manual, Transportation Research Board, Washington, D.C., 1997.

4. A Policy on geometric Design of Highways and Streets, 1990, American Association of State highway and Transportation Officials.

5. ITE Trip Generation Manual 7th Edition.

6. PennDOT Publication 282.

APPENDICES

1. Capacity Analysis (2006 Base Conditions)
2. Capacity Analysis (2006 Developed Conditions)
3. Capacity Analysis (2016 Base Conditions)
4. Capacity Analysis (2016 Developed Conditions)
5. Signal Warrant Analysis

I. INTRODUCTION

On behalf of NWL Company, McMillen Engineering performed an amendment to the traffic impact study for the proposed casino at Nemacolin Woodlands Resort. This amendment has been completed to analyze all of the study intersections using the newest version of HCS (HCS+ Release 5.2). The use of the new software had minor effects to the results and all of the recommendations from the approved study will remain the same.

TABLE 1 AREA POPULATION DATA	
City / County	2000 Census*
Uniontown	12,422
Fayette	148,644
Westmoreland	369,993
Washington	202,897
Greene	40,672
Somerset	80,023

*2000 census population (critical) used in traffic distribution calculations.

TABLE 2 DEVELOPMENT COMPONENTS TRAFFIC IMPACT STUDY		
ITE Number	**Development Component**	**Description**
473	Casino	500 slots
815	Outdoor Store	54,000 sf

TABLE 3

PROJECTED TRIP GENERATION
NEMACOLIN WOODLANDS RESORT CASINO
Wharton Township, Fayette County, Pennsylvania
Prepared by: McMillen Engineering Inc.

PROJECTED VEHICLE TRIP GENERATION (1)

				Weekday Peak PM Hour (3)			Saturday Peak Hour (4)		
Development Component	Size	ITE Code (5)	Average Weekday Daily Traffic (2)	Enter	Exit	Total	Enter	Exit	Total
Casino	500 slots	473		155	140	295	170	150	320
Outdoor Store	54,000sf	815	3000	148	147	295	208	201	409

(1) Trip generation rates based on Institute of Transportation Engineers, Trip Generation Manual 7th edition and Information provided by PADOT 12-0.
(2) Average weekday daily traffic volumes projected to be generated during a typical weekday (total trips entering and exiting)
(3) Trips shown for weekday PM peak hour of generator. The projected trips are applied to the peak hour of adjacent street traffic.
(4) Trips shown for saturday peak hour of generator. The projected trips are applied to the peak hour of adjacent street traffic.
(5) ITE land use code from Institute of Transportation Engineers, Trip Generation Manual 7th edition

II. BASE TRAFFIC ANALYSIS

A. Traffic Impact Study Findings

The following approach levels of service (LOS) were observed for each study intersection.

1. **SR 0040 /SR 0381 S**
   - LOS E - Weekday PM peak hour 2006 conditions without development
   - LOS E - Weekday PM peak hour 2006 conditions with development
   - LOS D - Saturday peak hour 2006 conditions without development
   - LOS D - Saturday peak hour 2006 conditions with development
   - LOS F - Weekday PM peak hour 2016 conditions without development
   - LOS F - Weekday PM peak hour 2016 conditions with development
   - LOS E - Saturday peak hour 2016 conditions without development
   - LOS D - Saturday peak hour 2016 conditions with development

2. **SR 0040 / SR 0381 N**
   - LOS D - Weekday PM peak hour 2006 conditions without development
   - LOS D - Weekday PM peak hour 2006 conditions with development
   - LOS E - Saturday peak hour 2006 conditions without development
   - LOS D - Saturday peak hour 2006 conditions with development
   - LOS E - Weekday PM peak hour 2016 conditions without development
   - LOS E - Weekday PM peak hour 2016 conditions with development
   - LOS F - Saturday peak hour 2016 conditions without development
   - LOS E - Saturday peak hour 2016 conditions with development

3. **SR 0040 / Hawes Road**
   - LOS C - Weekday PM peak hour 2006 conditions without development
   - LOS C - Weekday PM peak hour 2006 conditions with development
   - LOS C - Saturday peak hour 2006 conditions without development
   - LOS C - Saturday peak hour 2006 conditions with development
   - LOS D - Weekday PM peak hour 2016 conditions without development
   - LOS D - Weekday PM peak hour 2016 conditions with development
   - LOS C - Saturday peak hour 2016 conditions without development
   - LOS C - Saturday peak hour 2016 conditions with development

4. **SR 0040 / Secondary Driveway**
   - LOS -- Weekday PM peak hour 2006 conditions without development
   - LOS C - Weekday PM peak hour 2006 conditions with development
   - LOS -- Saturday peak hour 2006 conditions without development
   - LOS C - Saturday peak hour 2006 conditions with development
   - LOS -- Weekday PM peak hour 2016 conditions without development
   - LOS C - Weekday PM peak hour 2016 conditions with development
   - LOS -- Saturday peak hour 2016 conditions without development
   - LOS C - Saturday peak hour 2016 conditions with development

5. **SR 0040 / Casino (main) Driveway and Marker Road**
   LOS B - Weekday PM peak hour 2006 conditions without development
   LOS B - Weekday PM peak hour 2006 conditions with development
   LOS C - Saturday peak hour 2006 conditions without development
   LOS B - Saturday peak hour 2006 conditions with development
   LOS C - Weekday PM peak hour 2016 conditions without development
   LOS B - Weekday PM peak hour 2016 conditions with development
   LOS C - Saturday peak hour 2016 conditions without development
   LOS B - Saturday peak hour 2016 conditions with development

6. **SR 0040 / Smith School House Road**
   LOS C - Weekday PM peak hour 2006 conditions without development
   LOS C - Weekday PM peak hour 2006 conditions with development
   LOS C - Saturday peak hour 2006 conditions without development
   LOS C - Saturday peak hour 2006 conditions with development
   LOS C - Weekday PM peak hour 2016 conditions without development
   LOS C - Weekday PM peak hour 2016 conditions with development
   LOS C - Saturday peak hour 2016 conditions without development
   LOS C - Saturday peak hour 2016 conditions with development

7. **SR 0040 / SR 2011 (Dinner Bell Road)**
   LOS D - Weekday PM peak hour 2006 conditions without development
   LOS D - Weekday PM peak hour 2006 conditions with development
   LOS C - Saturday peak hour 2006 conditions without development
   LOS C - Saturday peak hour 2006 conditions with development
   LOS E - Weekday PM peak hour 2016 conditions without development
   LOS E - Weekday PM peak hour 2016 conditions with development
   LOS D - Saturday peak hour 2016 conditions without development
   LOS D - Saturday peak hour 2016 conditions with development

III. EXISTING TRANSPORTATION SYSTEM

A. Existing Traffic Volume Peak Hours

Data was collected for turning movements in the study area during Friday and Saturday peak hours. The study considers the weekday PM and Saturday peak periods.

TABLE 4
PEAK HOUR SUMMARY

Intersection	Peak Weekday PM	Peak Saturday AM
All	4:45 – 5:45	10:45 – 11:45

B. Traffic Signal Warrant Analysis

The need for a traffic signal at a particular intersection is based upon criteria in Chapter 201, Engineering and Traffic Studies[2], of the Pennsylvania Code, Title 67, under traffic Signal Warrants, Signalization is based on factors such as traffic volumes, vehicular movements, capacity analysis, speed data, and accident analysis. One or more of the traffic signal warrants must be met to justify a traffic signal.

A traffic signal warrant analysis has been performed for the intersection. The site driveway does warrant a traffic signal.

Results of the Warrant Analysis are presented in Appendix 5.

C. Highway Capacity Analysis

The Highway Capacity Manual[3] defines capacity analysis as a set of procedures used to estimate the traffic-carrying ability of a facility over a range of defined operational conditions. The operations conditions are described in terms of a letter from "A" to "F" with "A" being the most desirable condition. A description of the various levels of service is outlined in the Highway Capacity Manual.

The level of service at signalized intersections measures the average stop delay time per vehicle and also the volume to capacity ratio as it relates to the specific intersection. The capacity ratio compares the peak hour traffic volumes to the theoretical maximum traffic volumes that the facility can accommodate.

The level of service for an un-signalized intersection measures the delay to turning traffic to find a gap in a major street traffic flow to allow for the successful completion of the desired turning movement. The critical movements at un-signalized intersections are left turns on the main streets and left turns on the side streets.

Capacity analyses were performed for the weekday PM and Saturday Peak periods at the study intersections. The capacity analysis results are provided in detail in Appendix 2 through 5.

Capacity analyses were performed for 2006 and 2016 weekday peak PM and Saturday peak periods. Results of the analysis are compared for base and developed conditions. Summaries of the traffic volume and levels of service are presented in Figures 6 -9 and Table 5.

IV. DESIGN CONDITIONS

A. Design Year and Assumptions

The future year of 2016 was selected as the design year based upon the PaDOT policy of designing improvements for ten years beyond the proposed development. Additional assumptions include the traffic growth rate, current Transportation Improvement Program (TIP) items, and traffic volumes generated by other developments in the study area or close vicinity.

The traffic growth rate of 1% per year was obtained from the Southwestern Pennsylvania Regional Planning Commission (SPC).

B. Recommendations

McMillen Engineering recommends the improvements to the corridor as outlined in the analysis and this report. The improvements include:

1. **SR 0040 / Casino (Main) Driveway**
   - Install medium volume signalized driveway with left turn lanes for both Route 40 approaches.

TABLE 5
INTERSECTION LEVEL OF SERVICE SUMMARY
2006 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
Prepared by: McMillen Engineering Inc.

	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2006 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / SR 381S	Undeveloped	Developed	Undeveloped	Developed
SR 40 Westbound				
Left Turns and Throughs	A / 9.1	A / 9.1	A / 9.6	A / 9.5
SR 381S Northbound				
Left and Right Turns	E / 37.8	E / 37.0	D / 27.7	D / 25.4
Approach	E / 37.8	E / 37.0	D / 27.7	D / 25.4

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2006 CONDITIONS
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	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2006 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / SR 381N	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns and Throughs	A / 8.9	A / 8.9	A / 8.9	A / 8.8
SR 381N Southbound				
Left and Right Turns	D / 29.0	D / 30.0	E / 35.5	D / 30.2
Approach	D / 29.0	D / 30.0	E / 35.5	D / 30.2

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INTERSECTION LEVEL OF SERVICE SUMMARY
2006 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
Prepared by: McMillen Engineering Inc.

	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2006 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Hawes Rd.	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns and Throughs	A / 8.4	A / 8.4	A / 8.5	A / 8.4
Hawes Rd. Southbound				
Left and Right Turns	C / 20.9	C / 20.8	C / 20.9	C / 19.4
Approach	C / 20.9	C / 20.8	C / 20.9	C / 19.4

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2006 CONDITIONS
SR 0040
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	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2006 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Secondary Drive	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns and Throughs	--	A / 8.3	--	A / 8.3
Secondary Dr Southbound				
Left and Right Turns	--	C / 15.2	--	C / 15.3
Approach	--	C / 15.2	--	C / 15.3

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2006 CONDITIONS
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Wharton Township, Fayette County, Pennsylvania
Prepared by: McMillen Engineering Inc.

	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2006 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Marker Rd. – Main Driveway	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns	--	C / 31.9	--	C / 32.5
Right Turns and Throughs	--	B / 17.8	--	B / 15.7
Approach	--	B / 19.3	--	B / 18.0
SR 40 Westbound				
Left Turns	A / 8.8	C / 28.6	A / 9.0	C / 28.6
Right Turns and Throughs	--	B / 13.6	--	B / 13.0
Approach	--	B / 13.8	--	B / 13.3
Marker Rd. Northbound				
Left & Right Turns and Throughs	B / 14.3	C / 24.3	C / 16.0	C / 24.2
Approach	B / 14.3	C / 24.3	C / 16.0	C / 24.2
Main Driveway Southbound				
Left Turns and Throughs	--	C / 25.5	--	C / 25.6
Right Turns	--	C / 24.9	--	C / 25.0
Approach	--	C / 25.2	--	C / 25.3
Entire Intersection LOS	--	B / 17.8	--	B / 17.0

TABLE 5
INTERSECTION LEVEL OF SERVICE SUMMARY
2006 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
Prepared by: McMillen Engineering Inc.

	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2006 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Smith School Rd.	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns and Throughs	A / 8.3	A / 8.3	A / 8.4	A / 8.6
Smith School Rd. Southbound				
Left and Right Turns	C / 15.3	C / 15.3	C / 17.5	C / 18.9
Approach	C / 15.3	C / 15.3	C / 17.5	C / 18.9

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INTERSECTION LEVEL OF SERVICE SUMMARY
2006 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
Prepared by: McMillen Engineering Inc.

	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2006 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Dinner Bell Rd.	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left & Right Turns and Throughs	A / 8.3	A / 8.3	A / 8.2	A / 8.2
SR 40 Westbound				
Left & Right Turns and Throughs	A / 8.3	A / 8.8	A / 8.8	A / 8.8
Marker Rd. Northbound				
Left & Right Turns and Throughs	D / 27.8	D / 27.6	D / 33.8	D / 30.8
Approach	D / 27.8	D / 27.6	D / 33.8	D / 30.8
Main Driveway Southbound				
Left & Right Turns and Throughs	D / 31.9	D / 31.9	C / 24.9	C / 23.4
Approach	D / 31.9	D / 31.9	C / 24.9	C / 23.4

TABLE 5
INTERSECTION LEVEL OF SERVICE SUMMARY
2016 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
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	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2016 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / SR 381S	Undeveloped	Developed	Undeveloped	Developed
SR 40 Westbound				
Left Turns and Throughs	A / 9.4	A / 9.4	B / 10.0	A / 9.9
SR 381S Northbound				
Left and Right Turns	F / 59.3	F / 59.2	E / 38.0	D / 33.5
Approach	F / 59.3	F / 59.2	E / 38.0	D / 33.5

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INTERSECTION LEVEL OF SERVICE SUMMARY
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SR 0040
Wharton Township, Fayette County, Pennsylvania
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	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2016 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / SR 381N	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns and Throughs	A / 9.2	A / 9.2	A / 9.1	A / 9.0
SR 381N Southbound				
Left and Right Turns	E / 41.6	E / 42.0	F / 53.3	E / 42.9
Approach	E / 41.6	E / 42.0	F / 53.3	E / 42.9

TABLE 5
INTERSECTION LEVEL OF SERVICE SUMMARY
2016 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
Prepared by: McMillen Engineering Inc.

	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2016 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Hawes Rd.	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns and Throughs	A / 8.6	A / 8.6	A / 8.7	A / 8.6
Hawes Rd. Southbound				
Left and Right Turns	D / 25.9	D / 26.0	C / 24.7	C / 23.0
Approach	D / 25.9	D / 26.0	C / 24.7	C / 23.0

TABLE 5
INTERSECTION LEVEL OF SERVICE SUMMARY
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Wharton Township, Fayette County, Pennsylvania
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	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2016 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Secondary Drive	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns and Throughs	--	A / 8.5	--	A / 8.7
Secondary Dr Southbound				
Left and Right Turns	--	C / 16.6	--	C / 18.8
Approach	--	C / 16.6	--	C / 18.8

TABLE 5
INTERSECTION LEVEL OF SERVICE SUMMARY
2016 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
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	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2016 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Marker Rd. – Main Driveway	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns	--	C / 31.9	--	C / 32.5
Right Turns and Throughs	--	C / 21.3	--	B / 17.9
Approach	--	C / 22.4	--	B / 19.7
SR 40 Westbound				
Left Turns	A / 9.0	C / 28.6	A / 9.3	C / 28.6
Right Turns and Throughs	--	B / 14.5	--	B / 13.7
Approach	--	B / 14.7	--	B / 13.9
Marker Rd. Northbound				
Left & Right Turns and Throughs	C / 15.2	C / 24.3	C / 17.1	C / 24.2
Approach	C / 15.2	C / 24.3	C / 17.1	C / 24.2
Main Driveway Southbound				
Left Turns and Throughs	--	C / 25.5	--	C / 25.6
Right Turns	--	C / 24.9	--	C / 25.0
Approach	--	C / 25.2	--	C / 25.3
Entire Intersection LOS	--	B / 19.7	--	B / 18.1

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INTERSECTION LEVEL OF SERVICE SUMMARY
2016 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
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	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2016 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Smith School Rd.	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left Turns and Throughs	A / 8.4	A / 8.4	A / 8.6	A / 8.5
Smith School Rd. Southbound				
Left and Right Turns	C / 16.7	C / 16.7	C / 20.0	C / 19.2
Approach	C / 16.7	C / 16.7	C / 20.0	C / 19.2

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INTERSECTION LEVEL OF SERVICE SUMMARY
2016 CONDITIONS
SR 0040
Wharton Township, Fayette County, Pennsylvania
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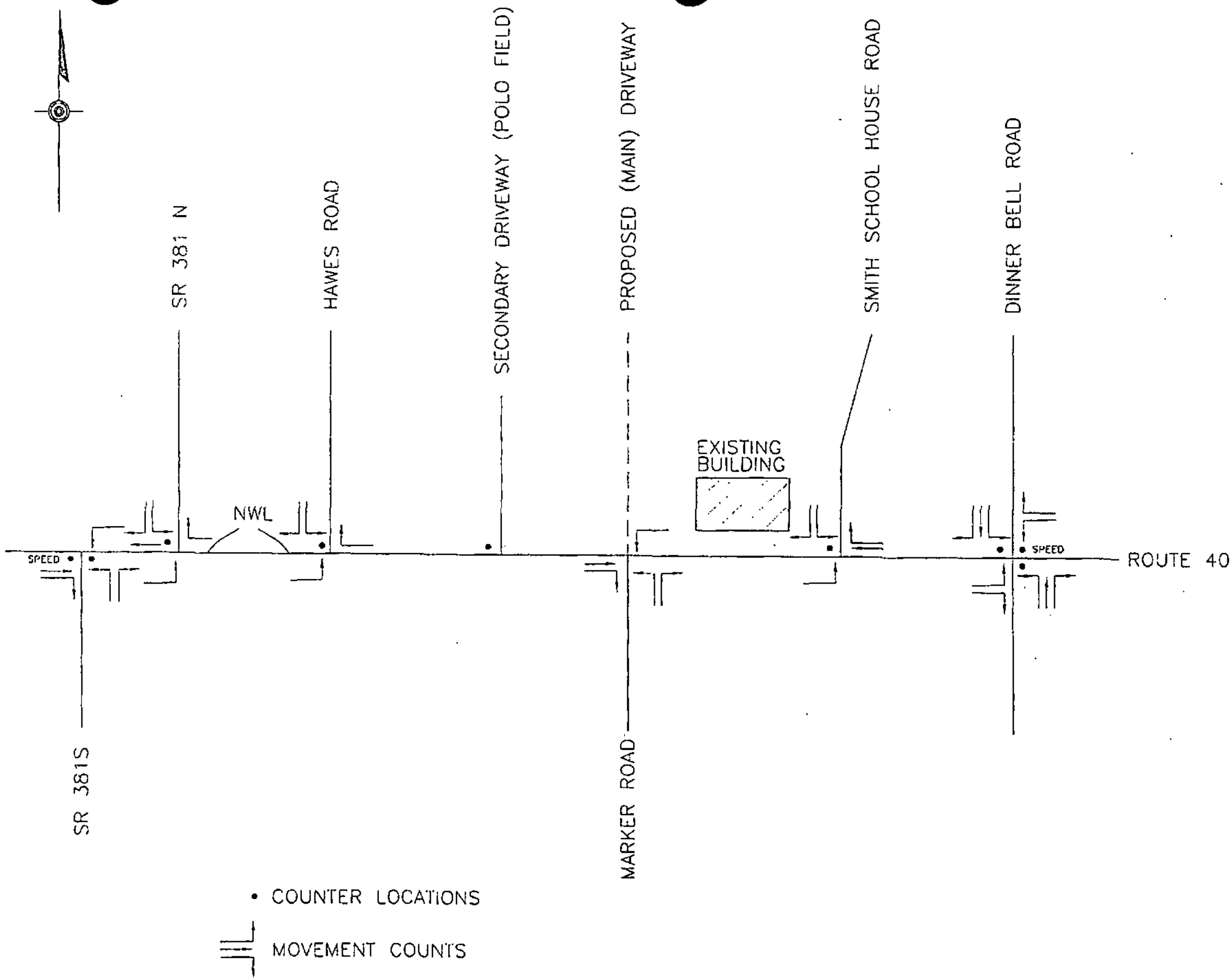
	Level of Service/Average Seconds of Delay (Signalized Intersection) or Reserve Capacity (Unsignalized Intersections) 2016 Conditions			
Intersection/Approach/Movement	**Weekday PM Peak**		**Saturday Peak**	
SR 40 / Dinner Bell Rd.	Undeveloped	Developed	Undeveloped	Developed
SR 40 Eastbound				
Left & Right Turns and Throughs	A / 8.4	A / 8.4	A / 8.4	A / 8.3
SR 40 Westbound				
Left & Right Turns and Throughs	A / 9.0	A / 9.0	A / 9.0	A / 9.0
Marker Rd. Northbound				
Left & Right Turns and Throughs	E / 35.3	E / 35.0	E / 48.4	E / 42.9
Approach	E / 35.3	E / 35.0	E / 48.4	E / 42.9
Main Driveway Southbound				
Left & Right Turns and Throughs	E / 44.4	E / 44.0	D / 31.8	D / 29.3
Approach	E / 44.4	E / 44.0	D / 31.8	D / 29.3

FIGURES



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NEMACOLIN WOODLANDS RESORT
OUTDOOR STORE
PREPARED FOR
NWL Co.
WHARTON TOWNSHIP, FAYETTE COUNTY
PENNSYLVANIA

TRAFFIC STUDY

2005-319
DME 7-28-05 | TR 7-28-05
TR 7-28-05
N.T.S.

SHEET 1

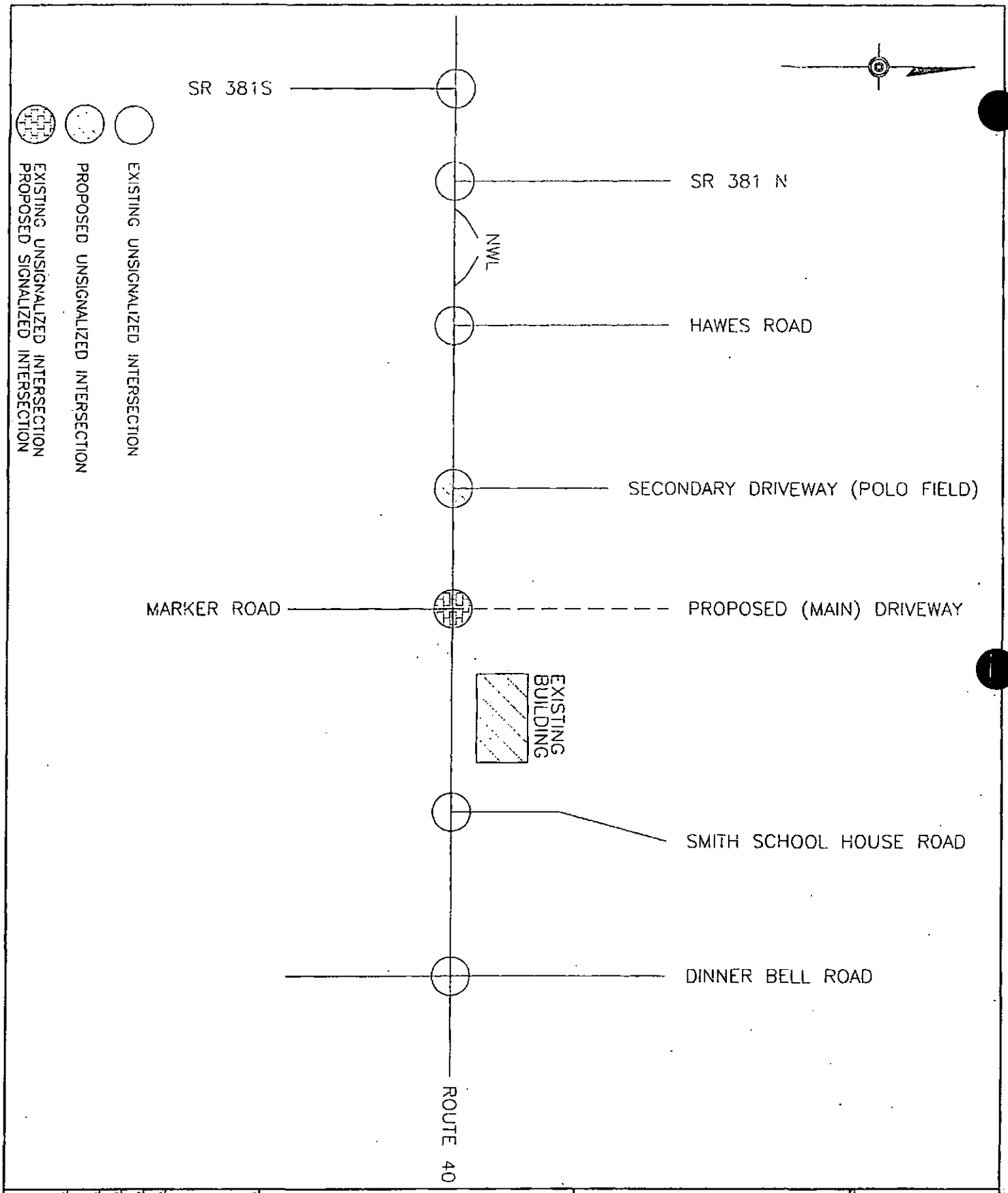

FIGURE 2

TRAFFIC ANALYSIS AREA MAP

N.T.S.

NEMACOLIN WOODLANDS RESORT

OUTDOOR STORE RENOVATION

PREPARED FOR

NWL Co.

WHARTON TOWNSHIP, FAYETTE COUNTY

PENNSYLVANIA

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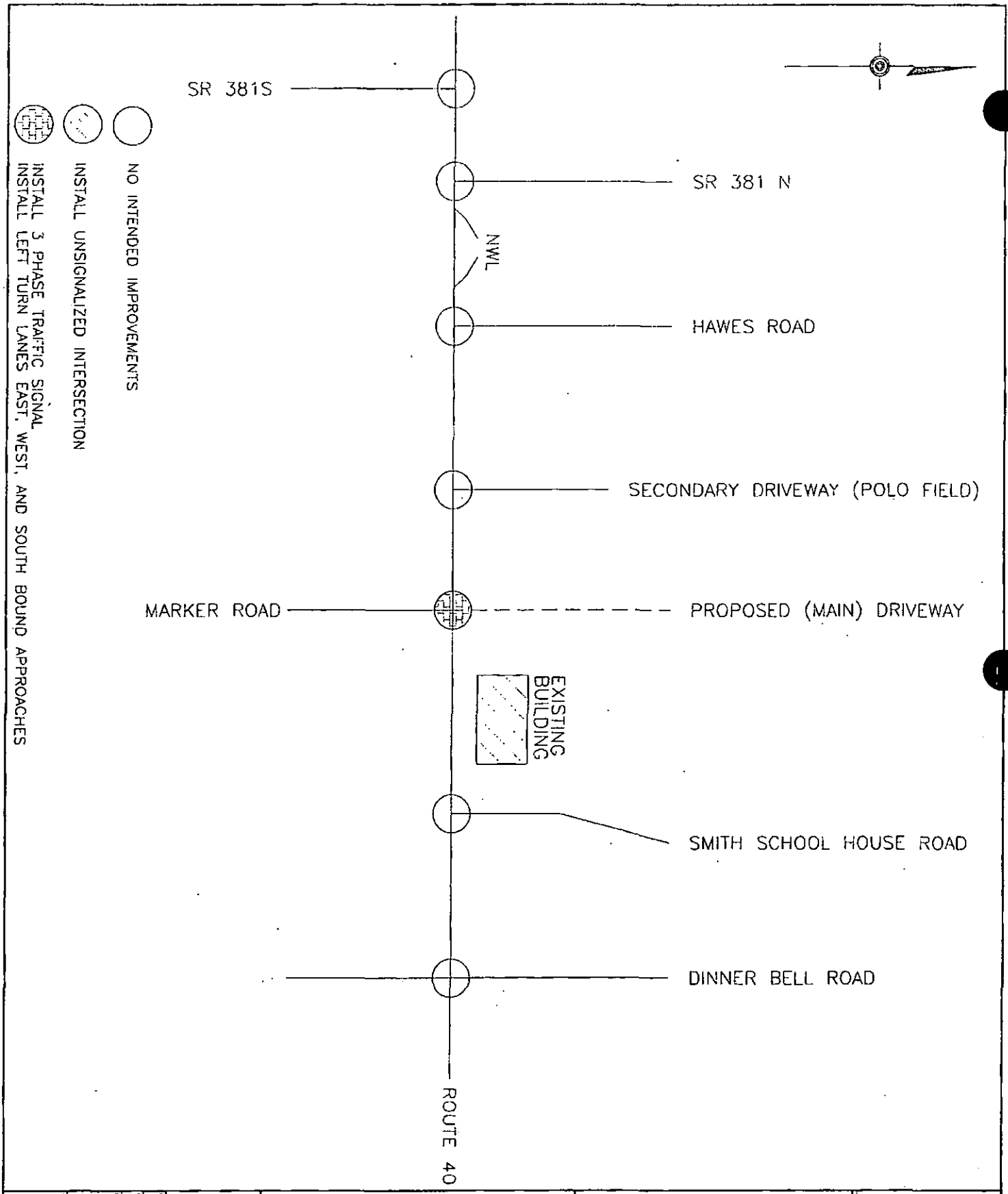

FIGURE 3

RECOMENDED IMPROVEMENTS MAP

N.T.S.

12/01/05

2005-319

NEMACOLIN WOODLANDS RESORT

OUTDOOR STORE RENOVATION

PREPARED FOR

NWL Co.

WHARTON TOWNSHIP, FAYETTE COUNTY

PENNSYLVANIA

REVISIONS

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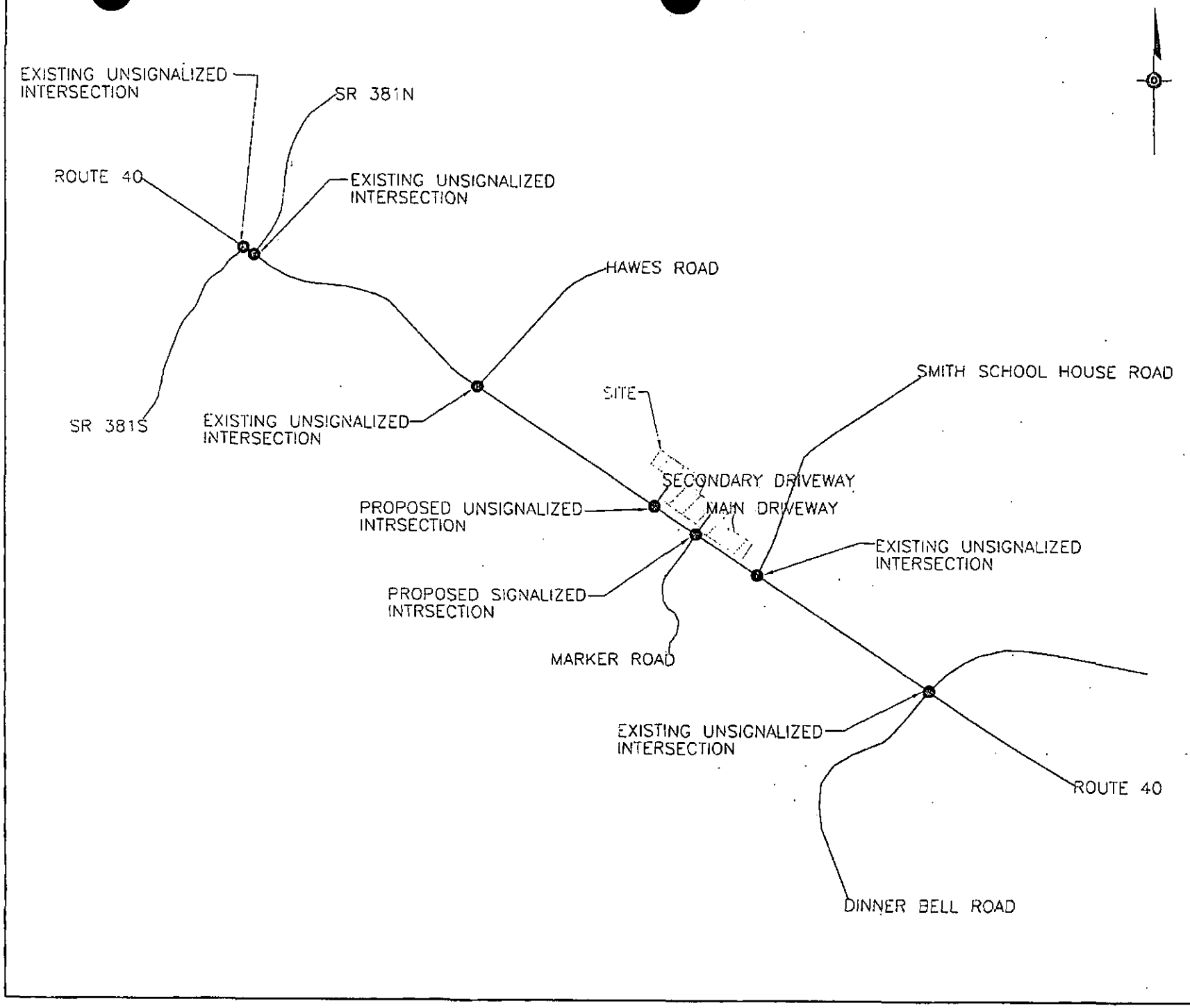

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REVISIONS

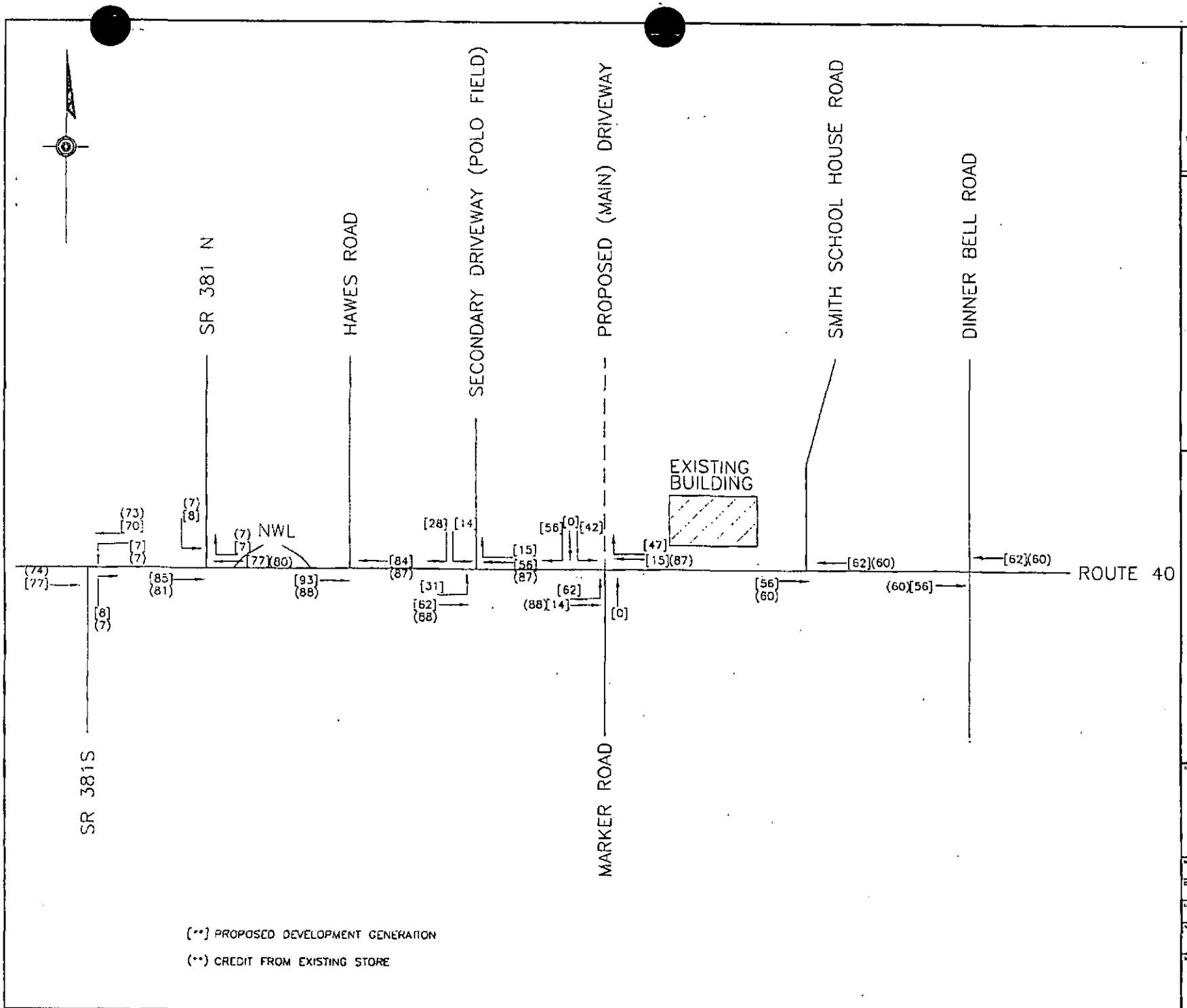
NO.	DESCRIPTION	DATE	BY

NEMACOLIN WOODLANDS RESORT
OUTDOOR STORE RENOVATION
PREPARED FOR
NWL Co.
WHARTON TOWNSHIP, FAYETTE COUNTY
PENNSYLVANIA

TRANSPORTATION PLAN

		JOB NO.	2005-319
DRAWN	RHH 11/23/05	CHECKED	TR 11/23/05
REVISED	RHH 11/23/05	SCALE	N.T.S.

FIGURE 4



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REVISIONS

NO.	DESCRIPTION	DATE	BY
1			

NEMACOLIN WOODLANDS RESORT

OUTDOOR STORE

PREPARED FOR

NWL Co.

WHARTON TOWNSHIP, FAYETTE COUNTY
PENNSYLVANIA

TITLE

WEEKDAY PM
DISTRIBUTION MAP

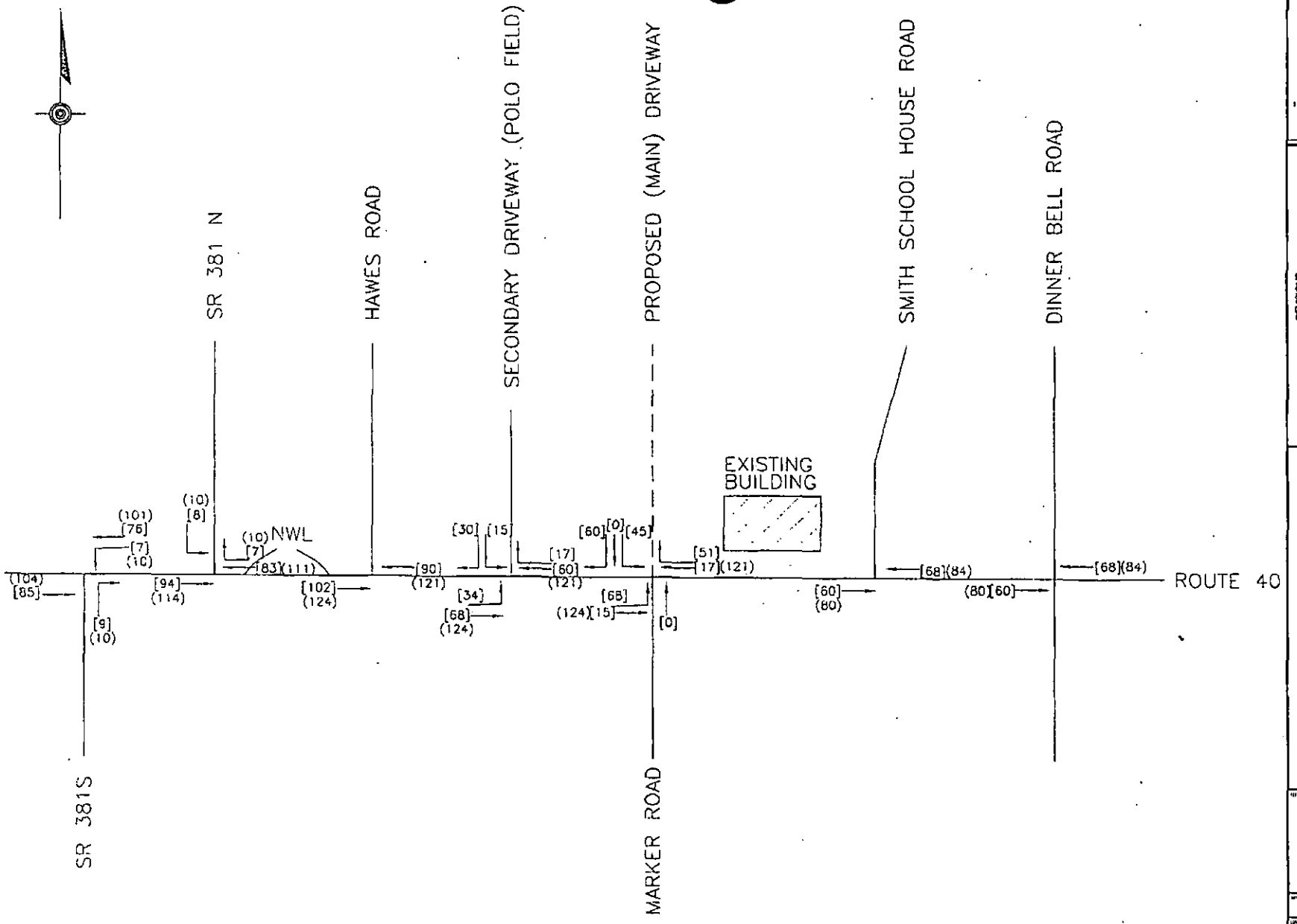
	**	JOB NO.	2005-319
DRAWN	RHN 11/23/05	CHECKED	TR 11/23/05
ISSUED	RHN 11/23/05	APPROVED	* **

SCALE

N.T.S.

SHEET NUMBER

FIGURE 5A



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1			

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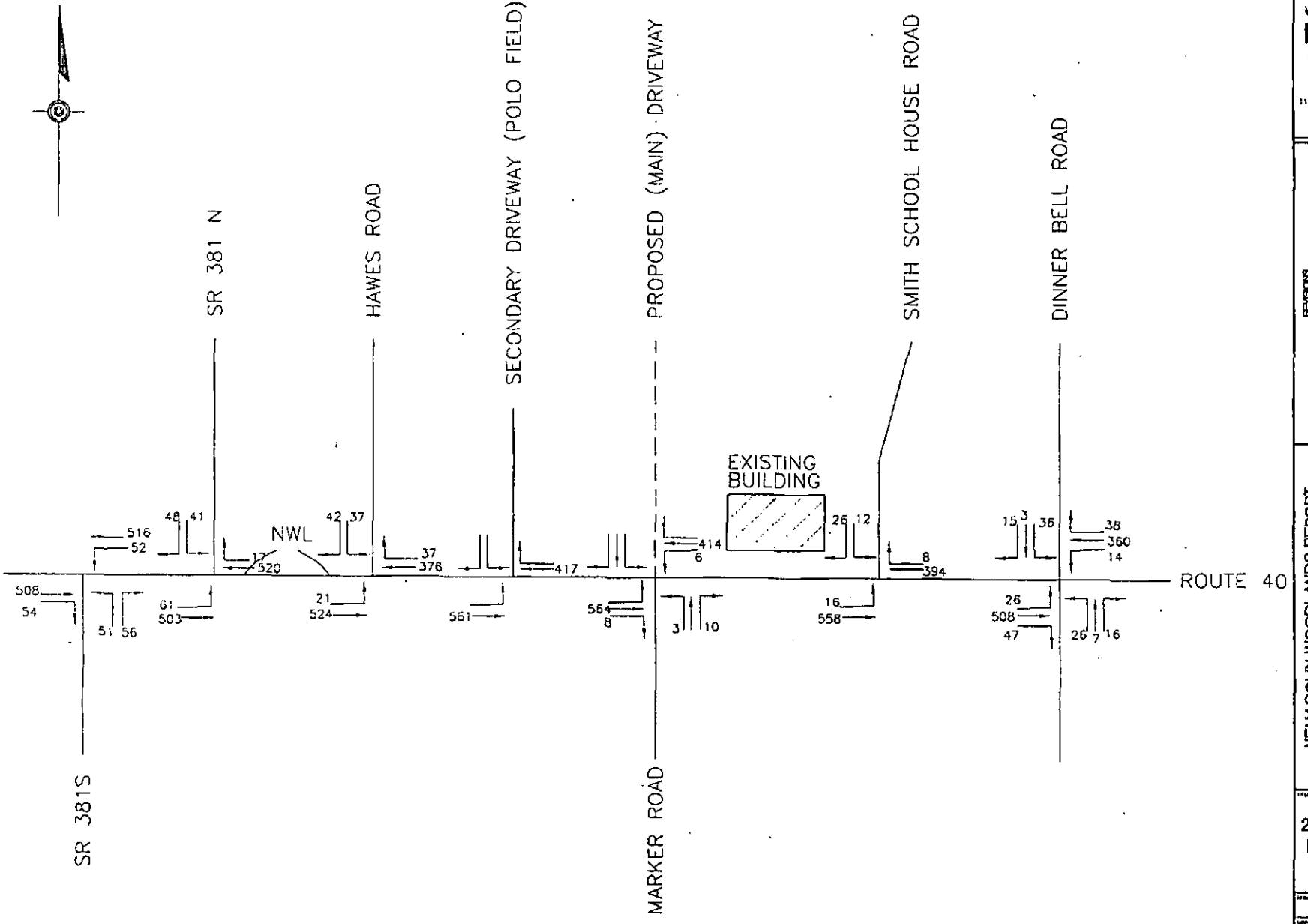
WHARTON TOWNSHIP, FAYETTE COUNTY
PENNSYLVANIA

SATURDAY DISTRIBUTION MAP

	**		2005-319
DRAWN	11/23/05	CHECKED	11/23/05
PLOTTED	11/23/05	APPROVED	* **

N.T.S.

FIGURE 5B



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TITLE

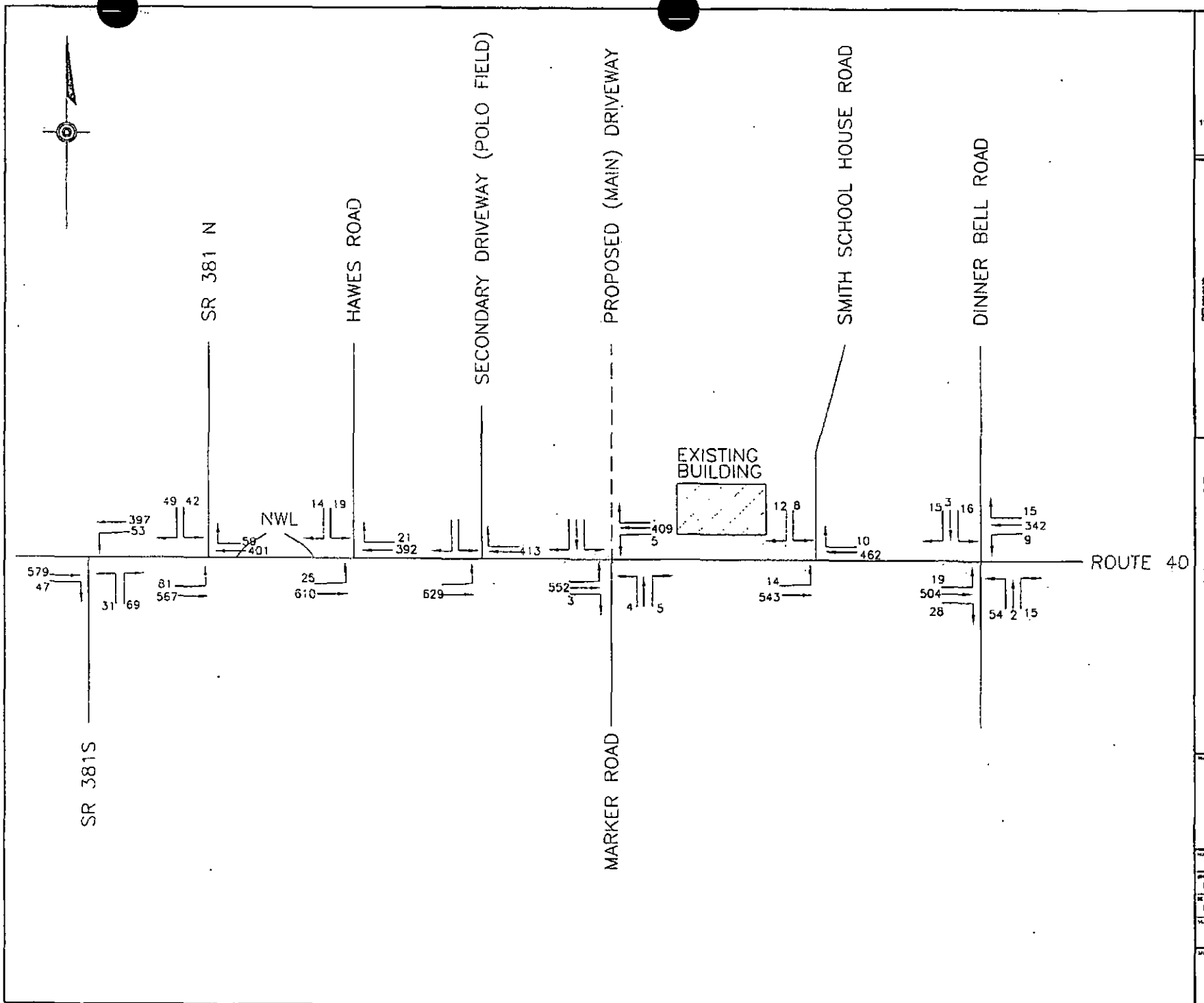
2006 WEEKDAY PM PEAK HOUR BASE VOLUMES

JOB NO.	**	JOB NO.	2005-319
DESIGNED	RHH 11/23/05	PREPARED	TR 11/23/05
REVIEWED	RHH 11/23/05	APPROVED	* **

SCALE: N.T.S.

SHEET NUMBER

FIGURE 6A



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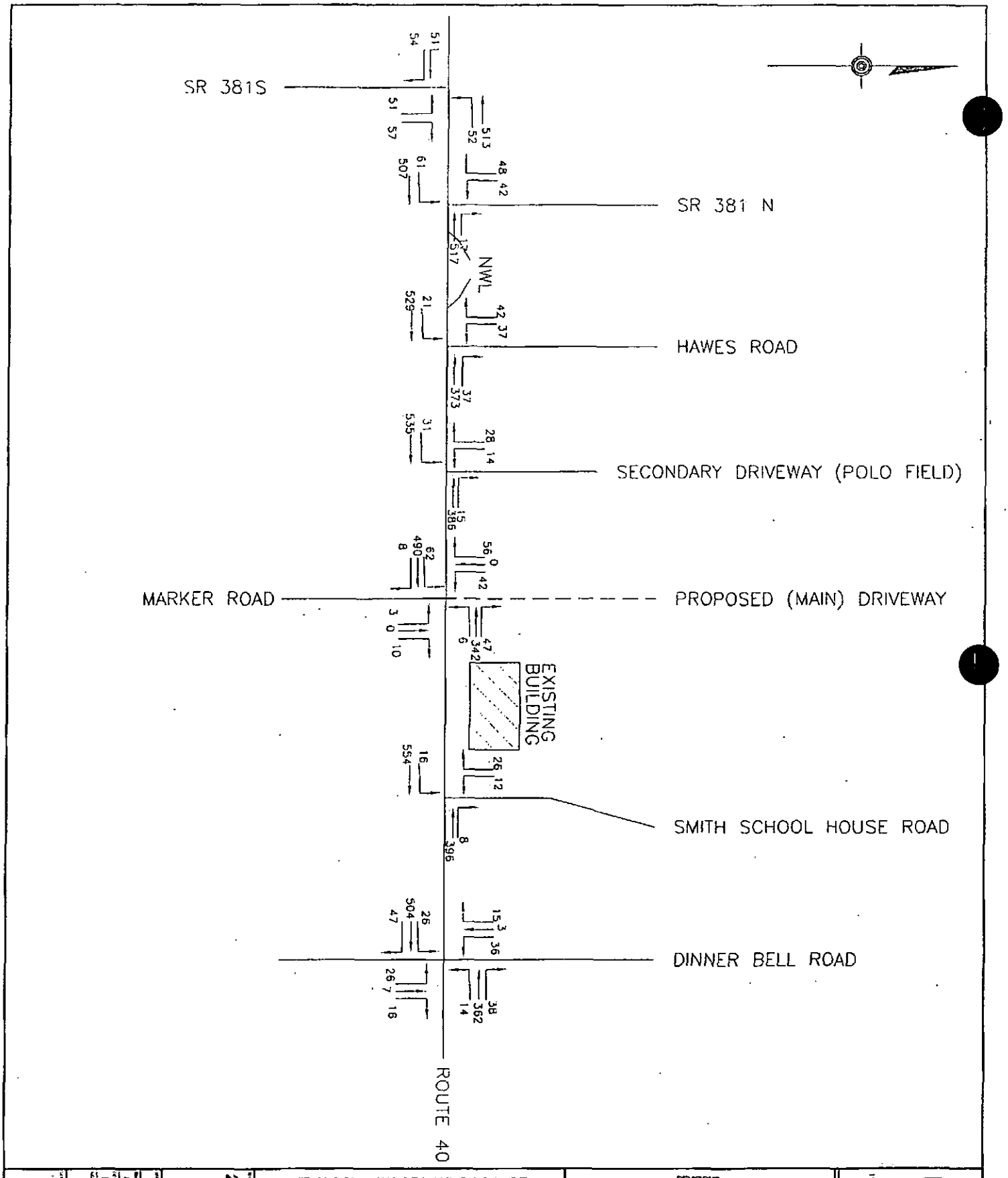
2006 SATURDAY PEAK HOUR BASE VOLUMES

	--		2006-319
RHH	11/23/05	TH	11/23/05
RHH	11/23/05	*	**

N.T.S.

FIGURE 6B



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PENNSYLVANIA

2006 WEEKDAY PM PEAK HOUR DEVELOPED VOLUMES

FIGURE 7A

N.T.S.

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NO.	DESCRIPTION	DATE	BY
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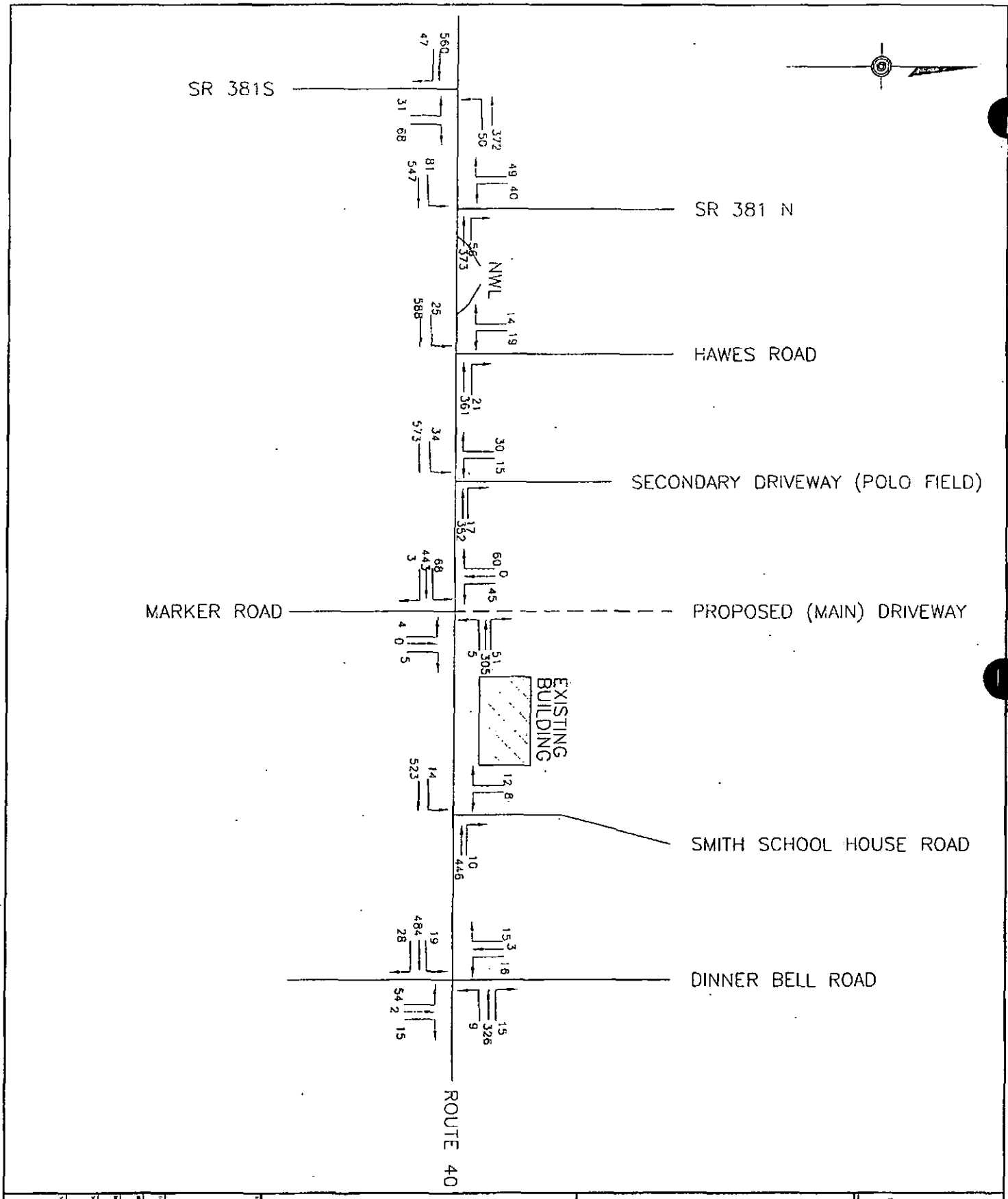

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PENNSYLVANIA

2006 SATURDAY PEAK HOUR DEVELOPED VOLUMES

FIGURE 7B

N.T.S.

DRAWN	DATE
RHH	11/23/05
CHECKED	DATE
TR	11/23/05
APPROVED	DATE
"	"

JOB NO. 2005-318

REVISIONS

NO.	DESCRIPTION	DATE	BY
1			

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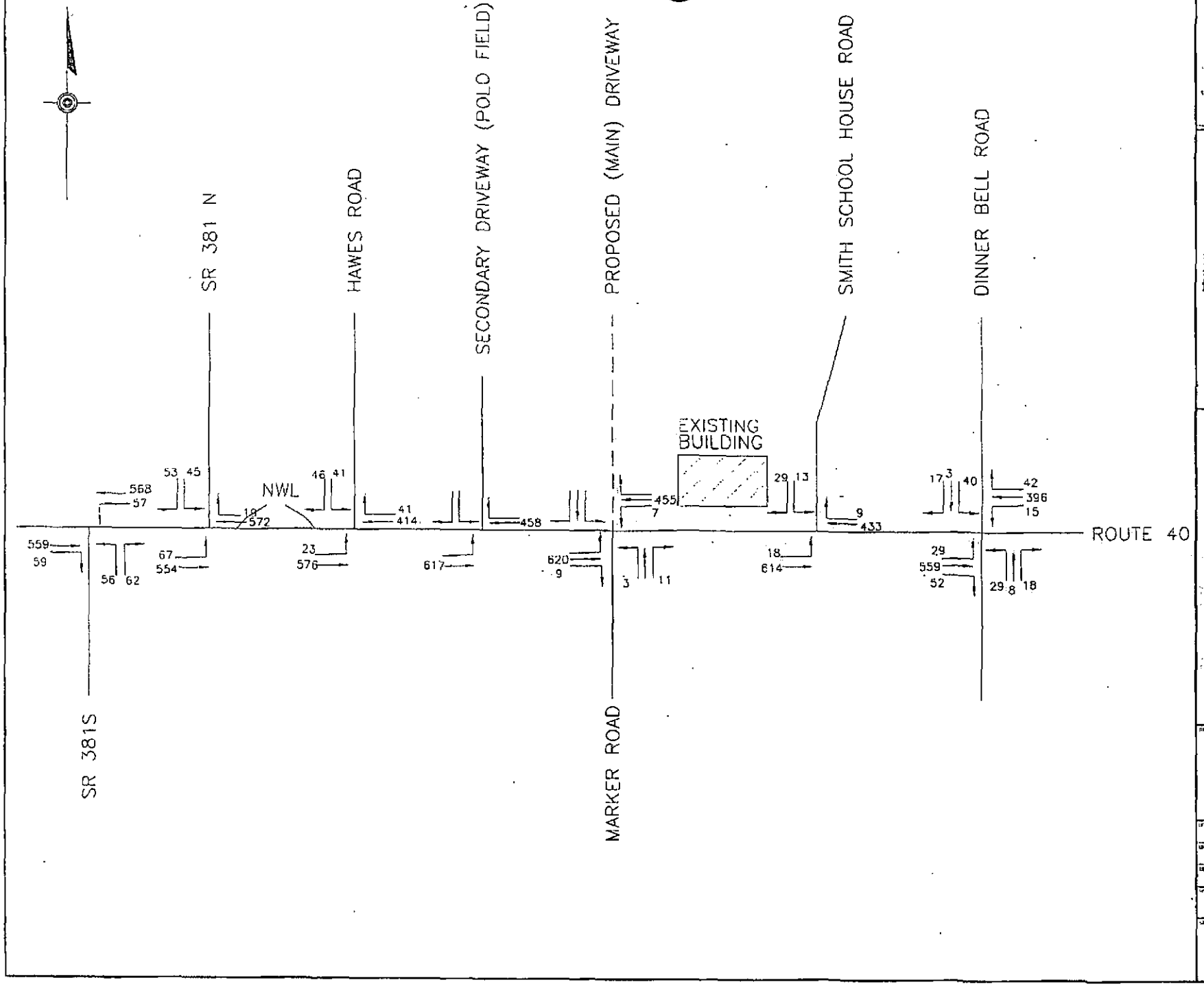

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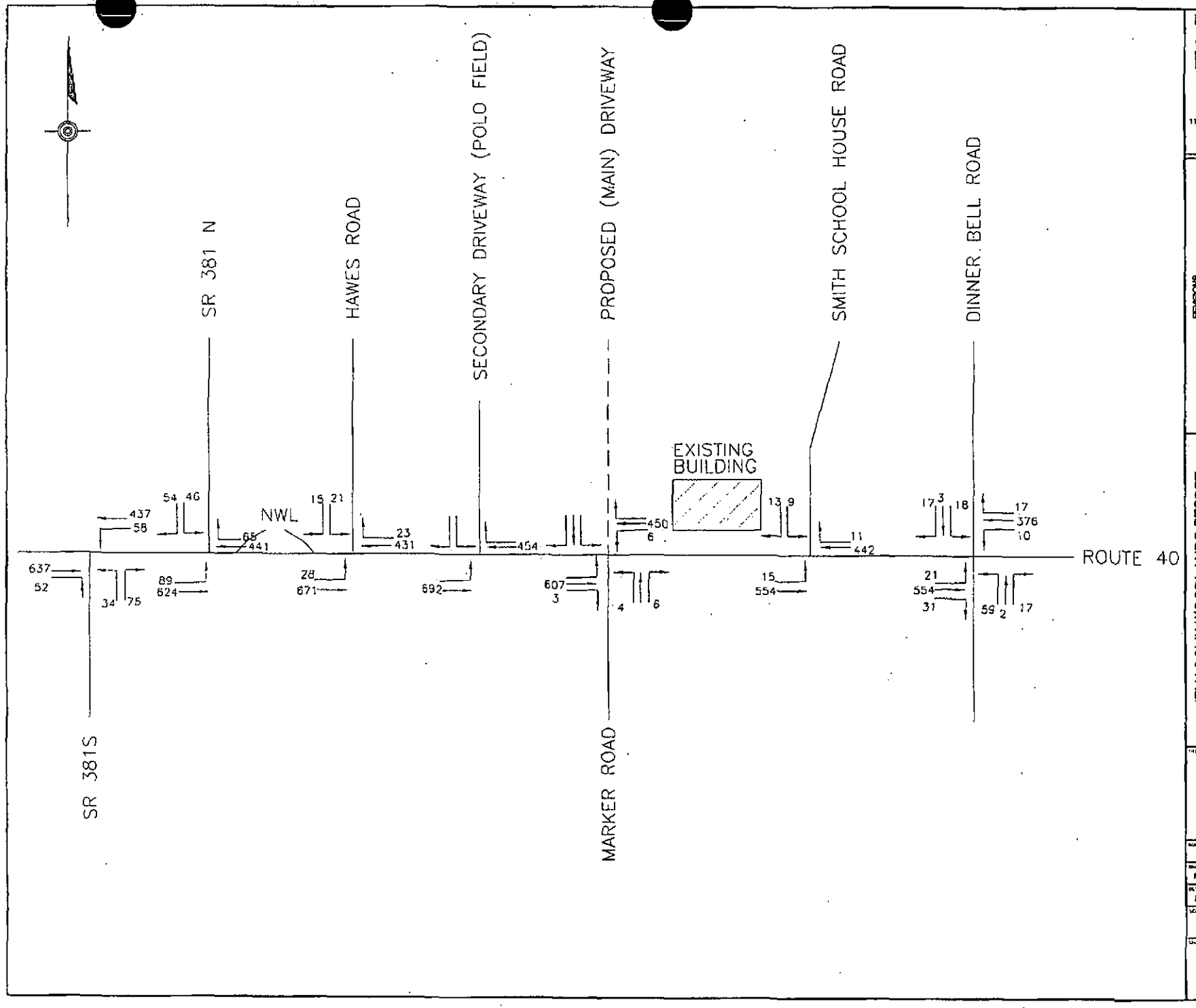
2016 WEEKDAY PM PEAK HOUR BASE VOLUMES

DRAWN BY: RHH 11/23/05	JOB NO: 2005-316
DETAILED BY: RHH 11/23/05	CHECKED BY: TR 11/23/05
SCALE: N.T.S.	APPROVED BY:

FIGURE 6C



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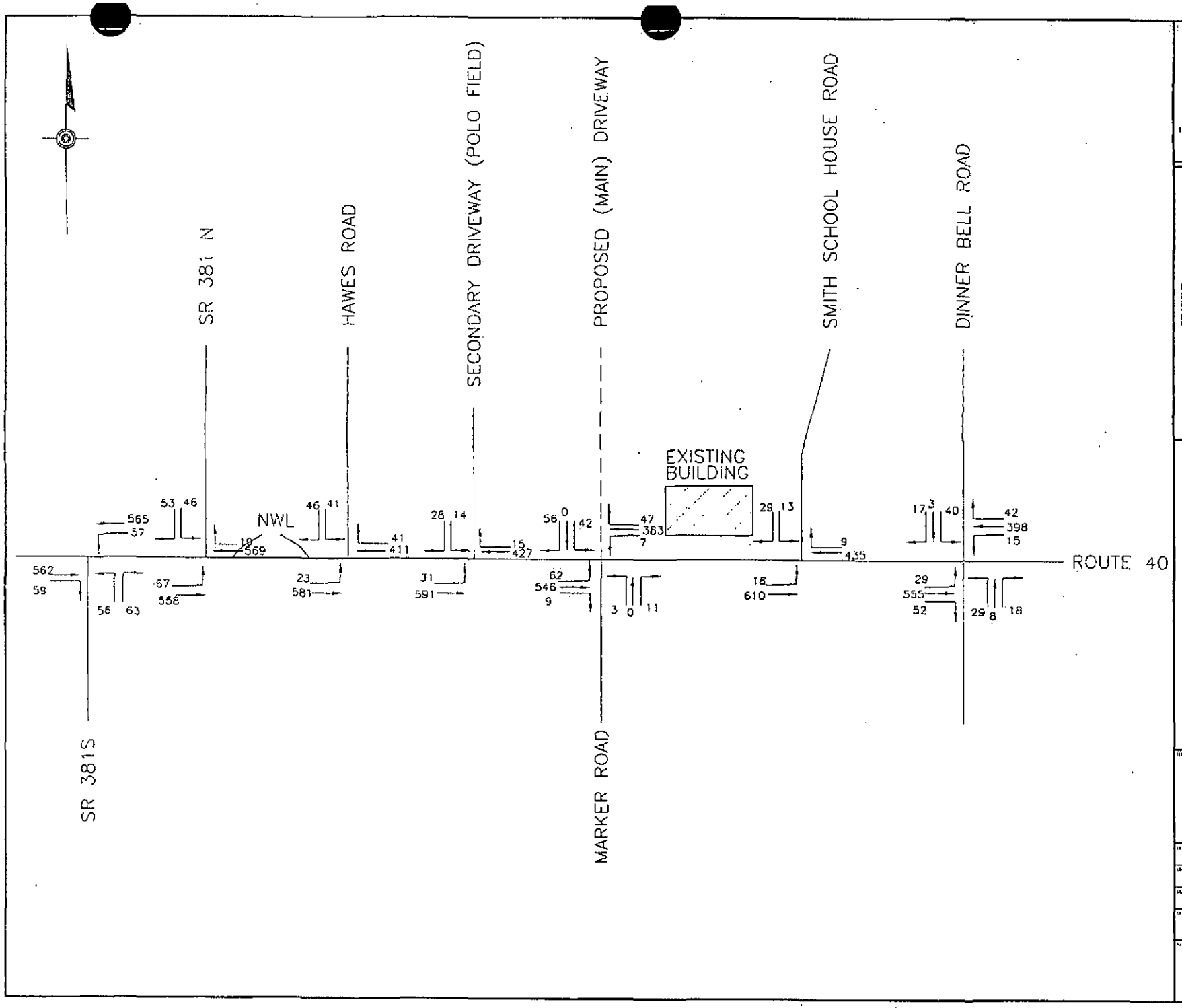
2016 SATURDAY PEAK HOUR BASE VOLUMES

Scale:		Job No.	2005-319
Drawn	RHH 11/23/05	Checked	TR. 11/23/05
Design	RHH 11/23/05	Approved	* **

Scale: N.T.S.

Sheet Number
FIGURE 6D



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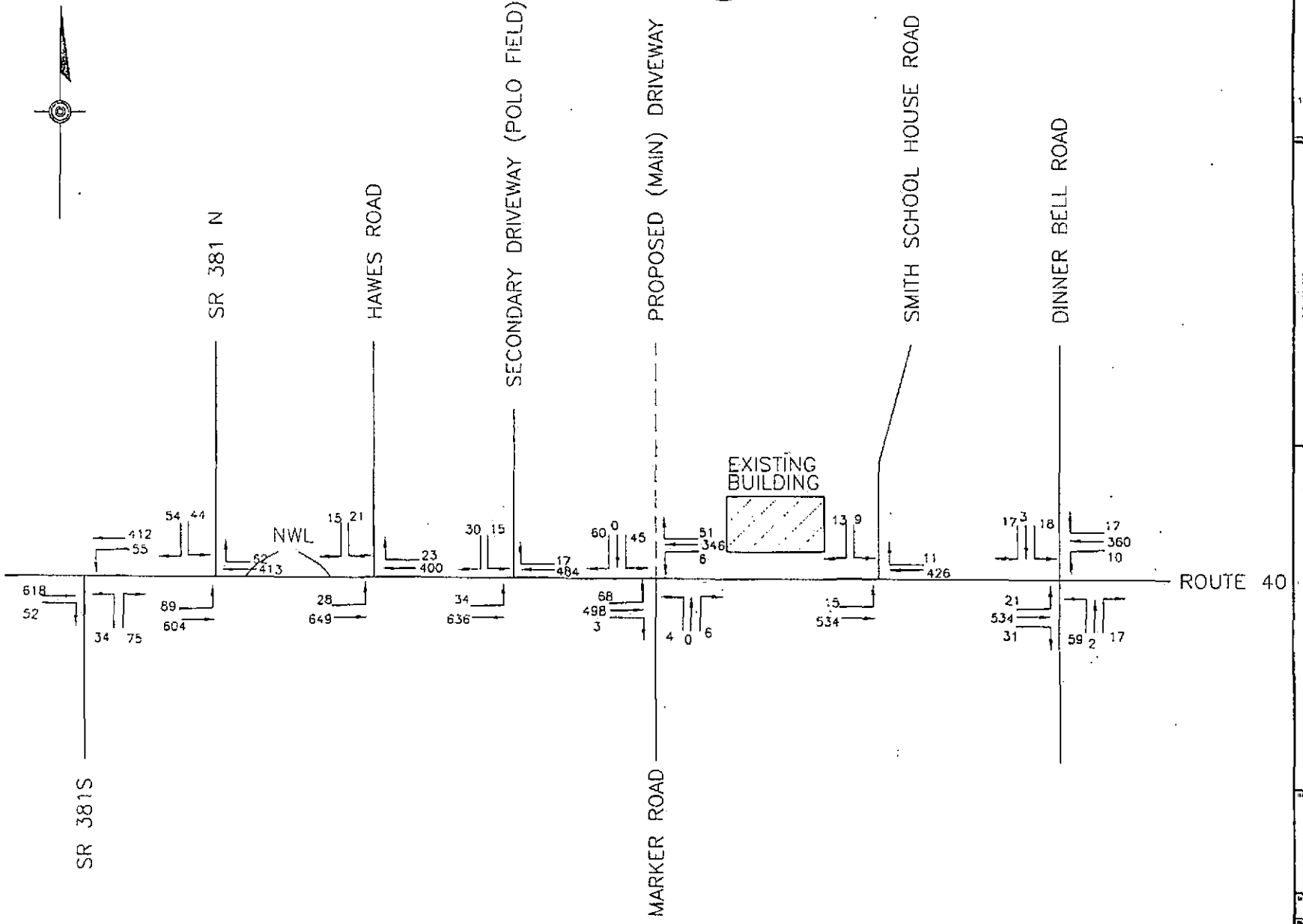
2016 WEEKDAY PM PEAK HOUR DEVELOPED VOLUMES

**	2005-319
RBH 11/23/05	TR 11/23/05
RBH 11/23/05	* **

N.T.S.

FIGURE 7C



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TITLE

2016 SATURDAY PEAK HOUR DEVELOPED VOLUMES

	**	JOB NO.	2005-319
DESIGNED	RHH 11/23/05	CHECKED	TR 11/23/05
DRAWN	RHH 11/23/05	APPROVED	* **

SCALE: N.T.S.

FIGURE 7D

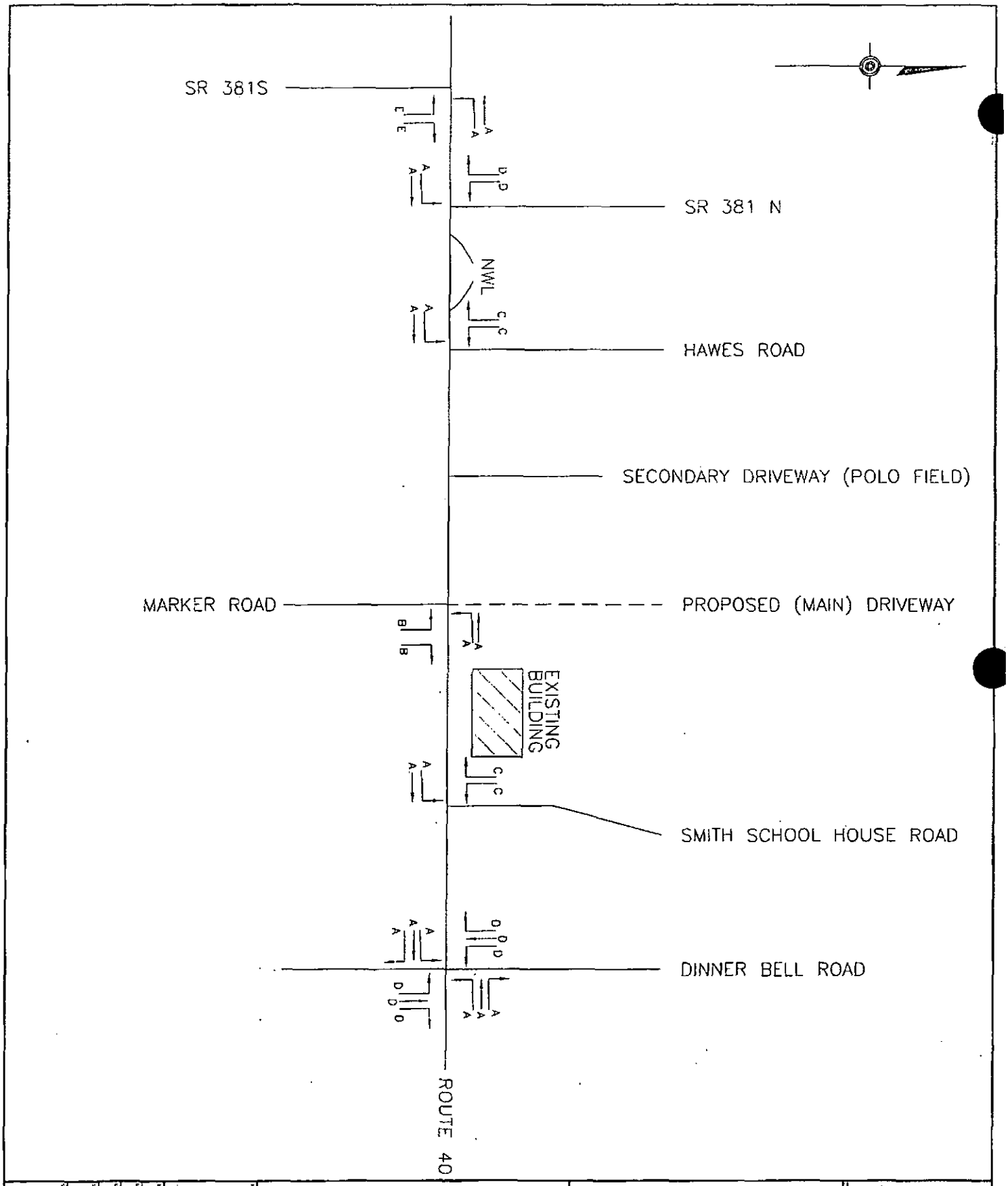

FIGURE 8A

2006 WEEKDAY PM PEAK HOUR BASE LEVEL OF SERVICE

N.T.S.

NEMACOLIN WOODLANDS RESORT

OUTDOOR STORE

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PENNSYLVANIA

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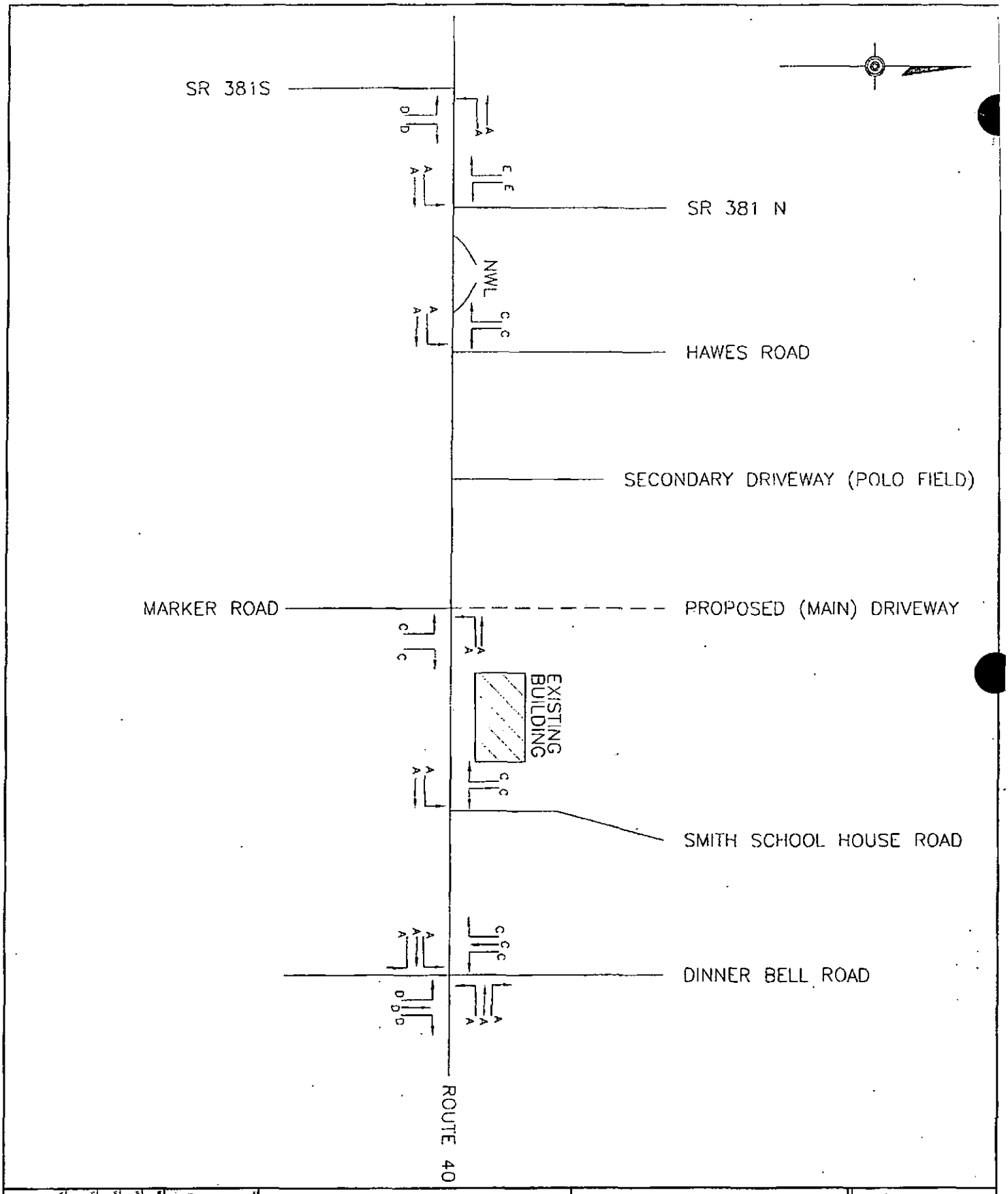

FIGURE 8B

2006 SATURDAY PEAK HOUR BASE LEVEL OF SERVICE

N.I.S.

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OUTDOOR STORE

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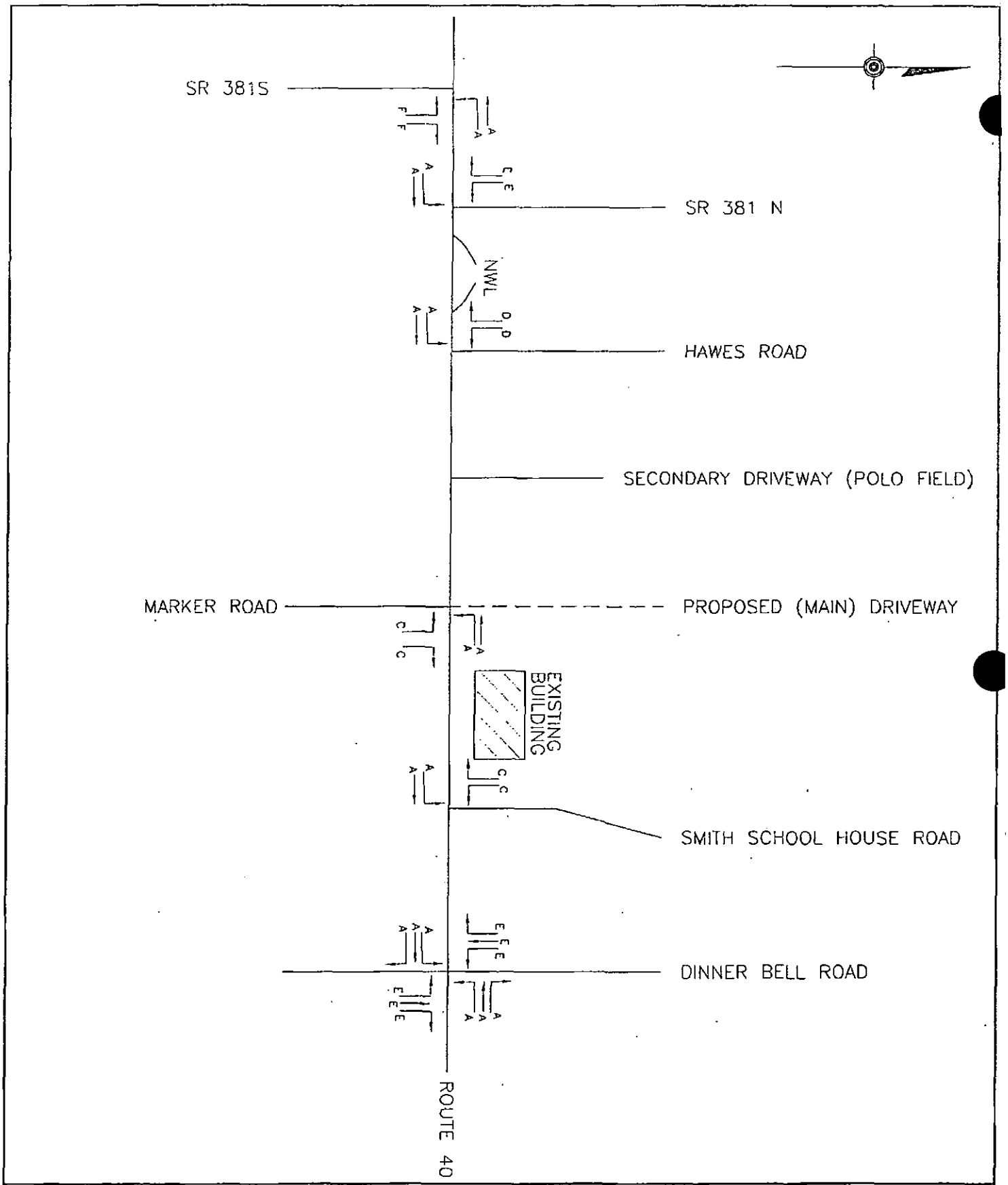

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2016 WEEKDAY PM PEAK HOUR BASE LEVEL OF SERVICE

FIGURE 8C

N.T.S.

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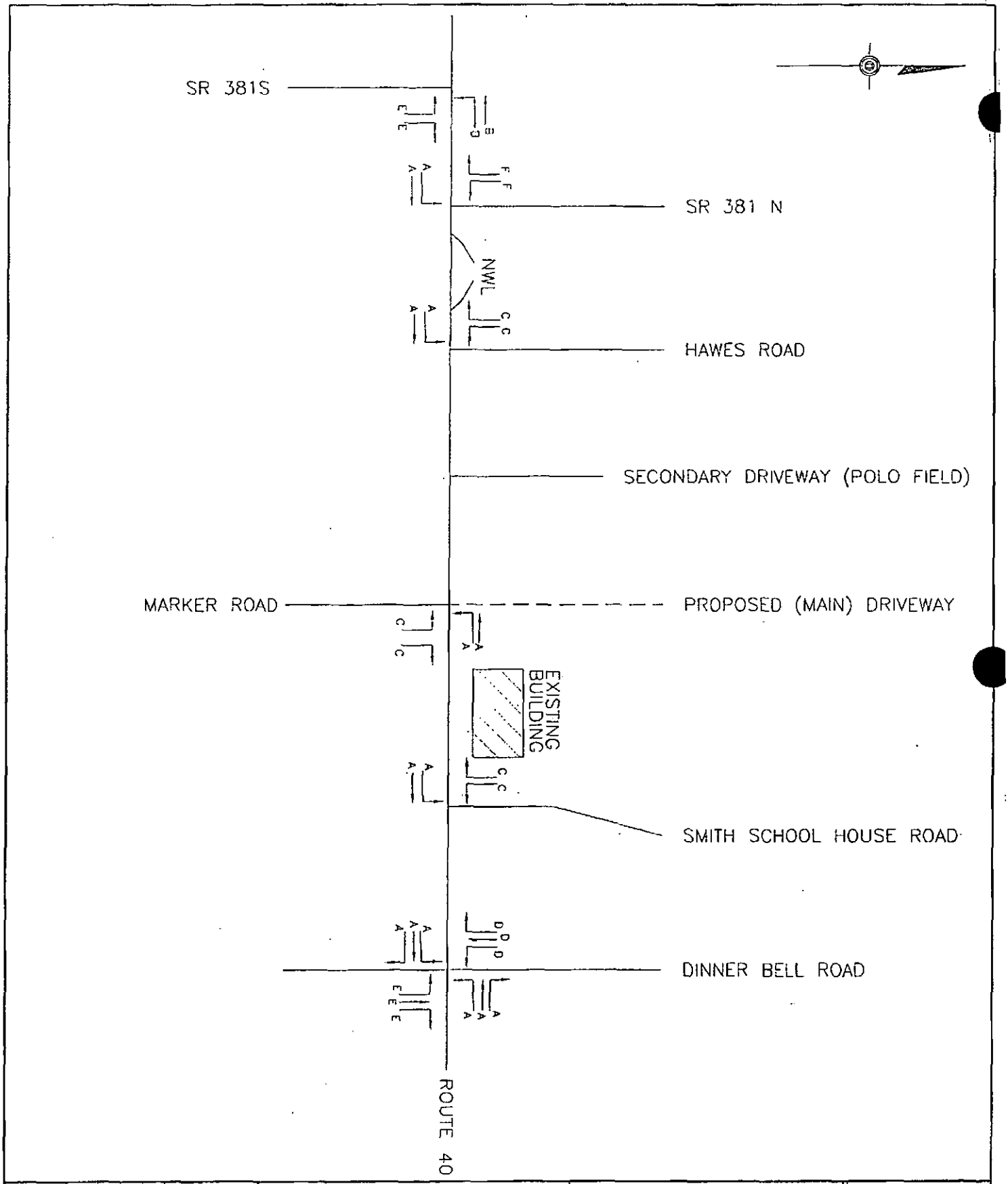

FIGURE 8D

2016 SATURDAY PEAK HOUR BASE LEVEL OF SERVICE

N.T.S.

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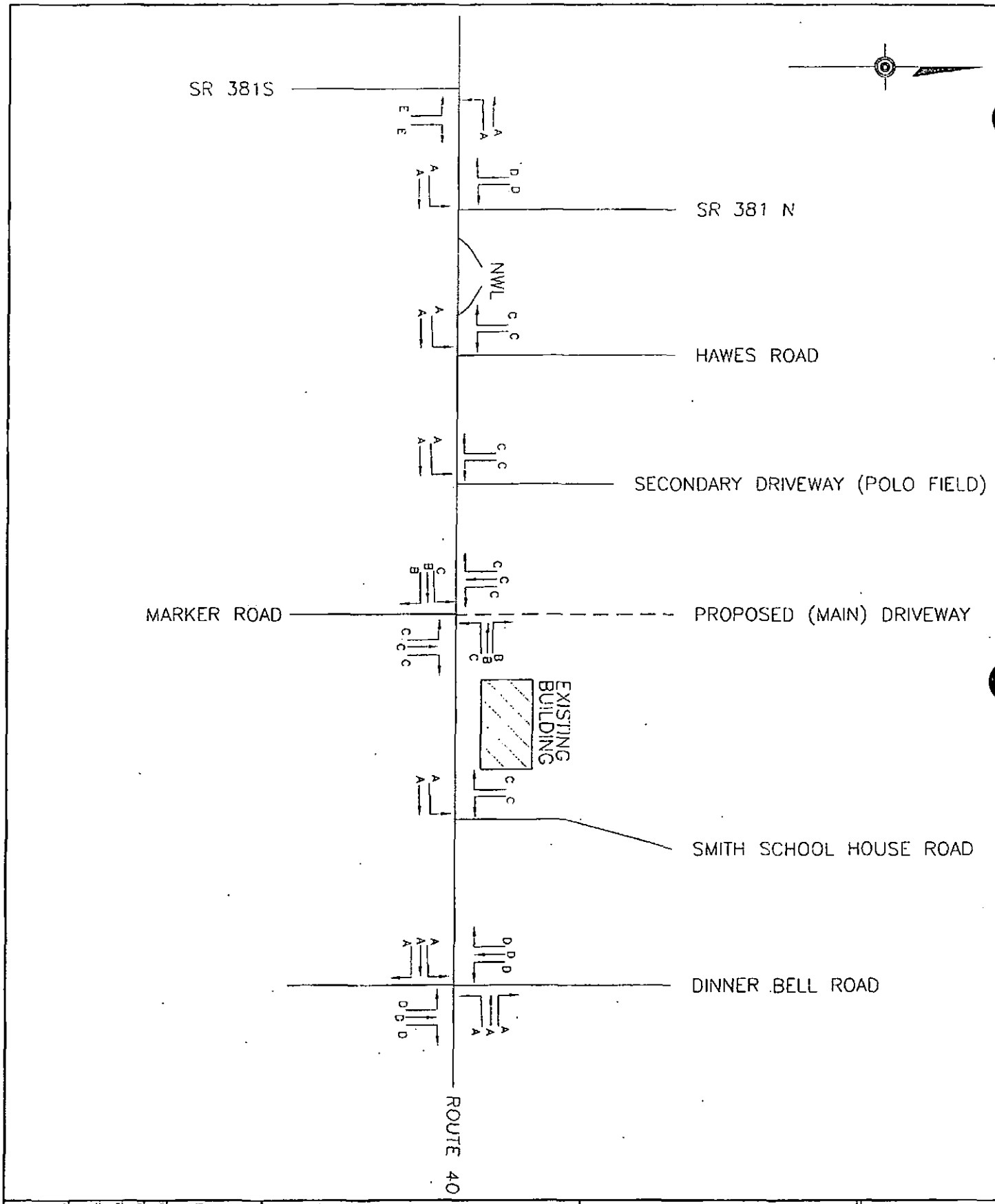

2006 WEEKDAY PM PEAK HOUR DEVELOPED LEVEL OF SERVICE

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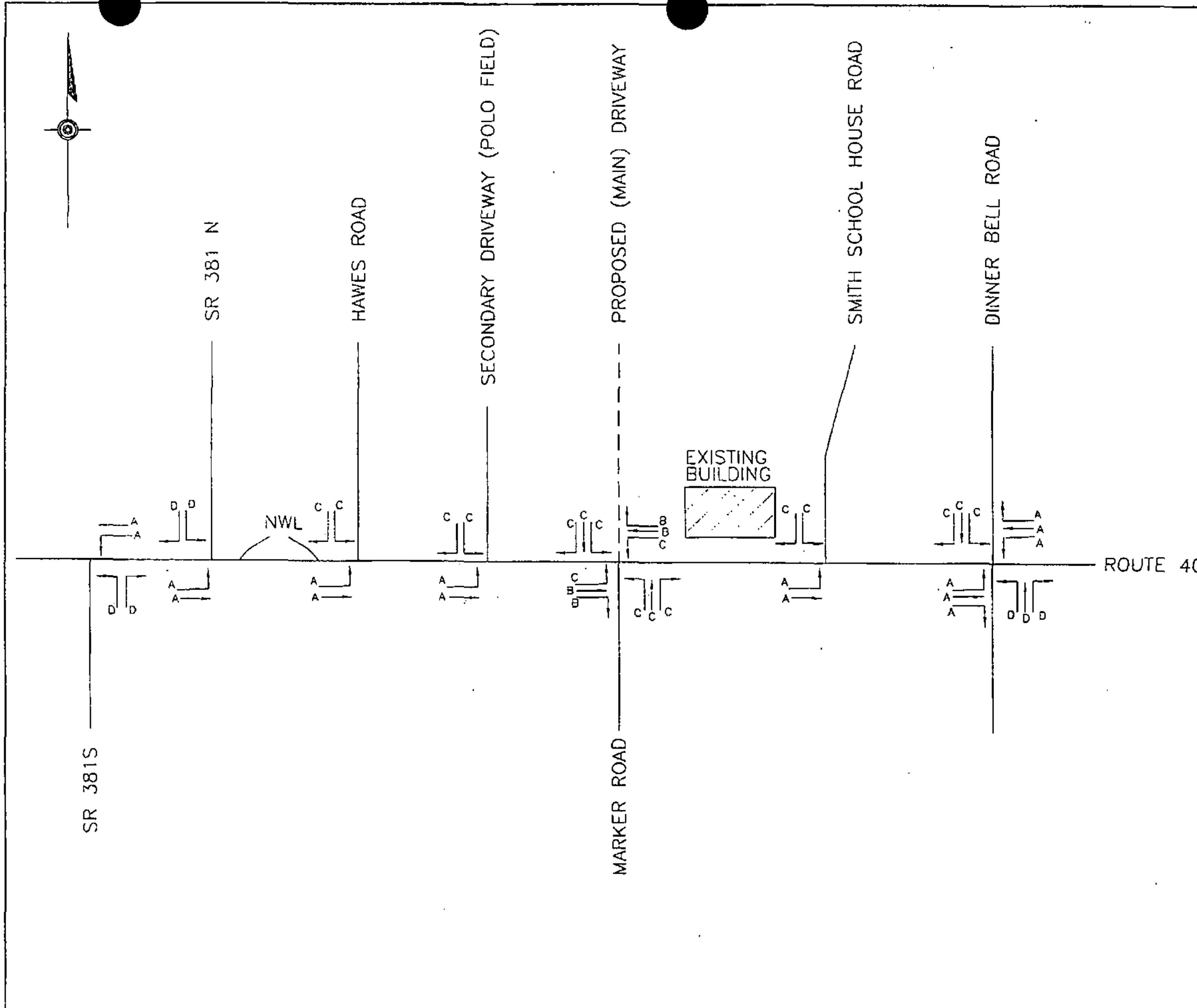
DRAWN	**	CHECKED	
RHH	11/23/05	TB	11/23/05
REVISED		APPROVED	
RHH	11/23/05	*	**
SCALE		JOB NO.	2005-319
N.T.S.		SHEET NUMBER	

FIGURE 9A



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2006 SATURDAY PEAK HOUR DEVELOPED LEVEL OF SERVICE

2005-319
RHH 11/23/05 | TR 11/23/05
RHH 11/23/05

N.T.S.

FIGURE 9B

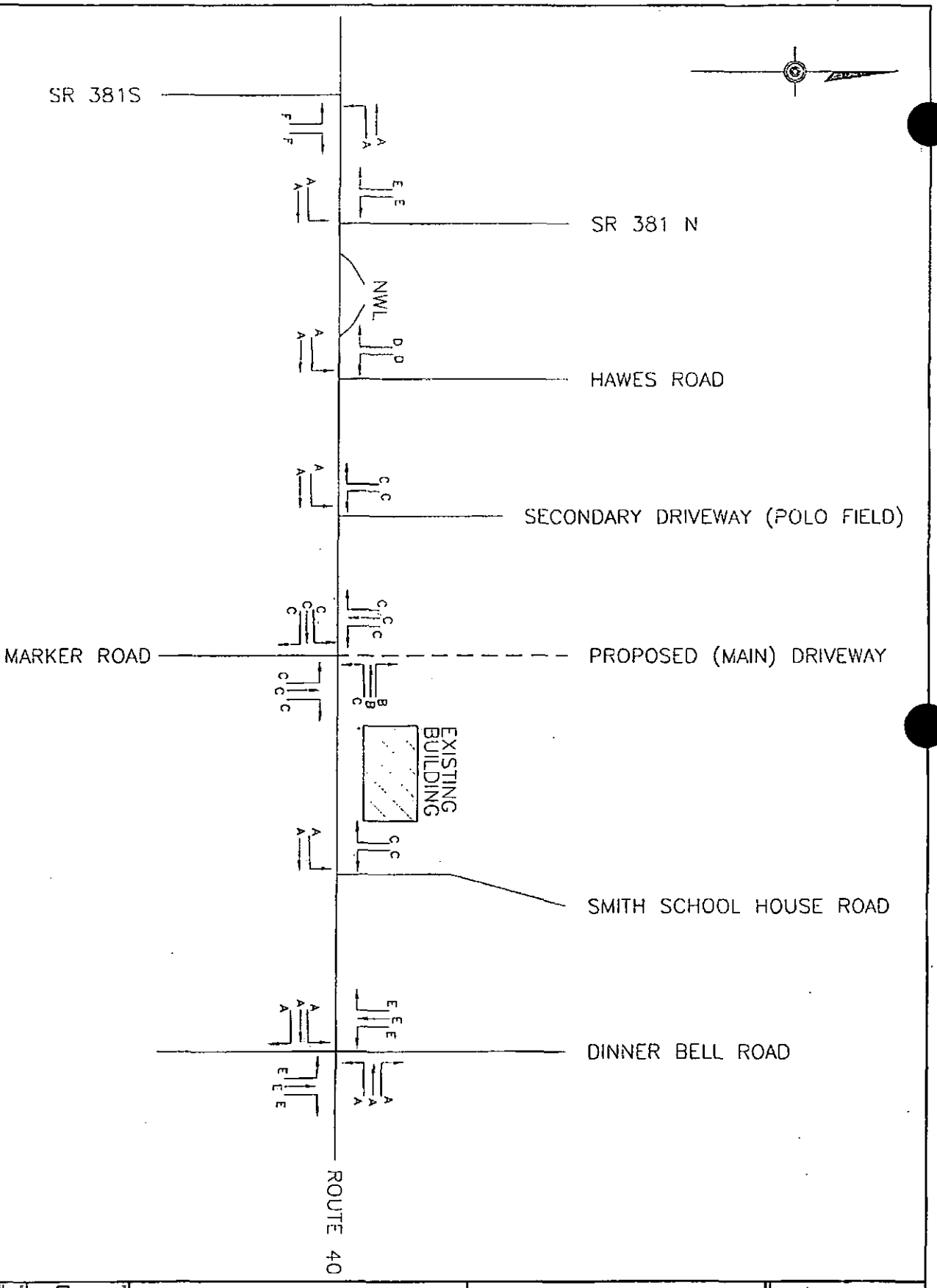

FIGURE 9C

2016 WEEKDAY PM PEAK HOUR DEVELOPED LEVEL OF SERVICE

N.T.S.

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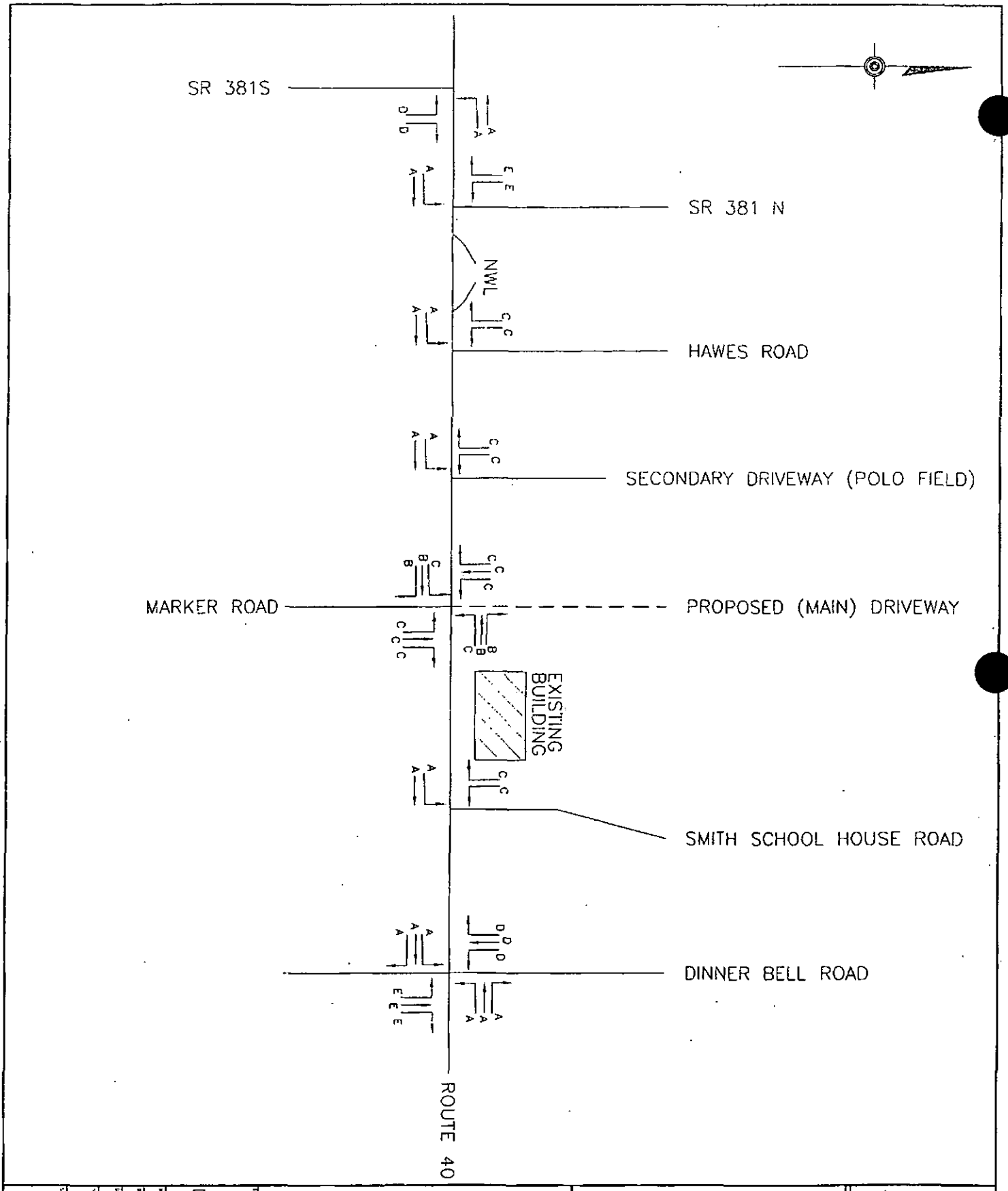

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2016 SATURDAY PEAK HOUR DEVELOPED LEVEL OF SERVICE

FIGURE 9D

N.T.S.

DRAWN	DATE	JOB NO.
RHH	11/23/05	2005-319
DESIGNED	CHECKED	APPROVED
RHH	11/23/05	**

REVISIONS			
NO.	DESCRIPTION	DATE	BY
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APPENDIX 1

CAPACITY ANALYSIS (2006 BASE CONDITIONS)

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ SR 381 S
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and SR 381 S
East/West Street: Route 40
North/South Street: SR 381 S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		508	54	52	516	
Peak-Hour Factor, PHF		0.92	0.75	0.72	0.91	
Hourly Flow Rate, HFR		552	72	72	567	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1 0		0 1		
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	51	0	56			
Peak Hour Factor, PHF	0.71	0.50	1.00			
Hourly Flow Rate, HFR	71	0	56			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			3	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		72		127				
C(m) (vph)		952		232				
v/c		0.08		0.55				
95% queue length		0.24		2.96				
Control Delay		9.1		37.8				
LOS		A		E				
Approach Delay				37.8				
Approach LOS				E				

HCS+: Unsignalized Intersections Release 5.2

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ SR 381 S
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and SR 381 S
East/West Street: Route 40
North/South Street: SR 381 S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume		508	54	52	516	
Peak-Hour Factor, PHF		0.92	0.75	0.72	0.91	
Peak-15 Minute Volume		138	18	18	142	
Hourly Flow Rate, HFR		552	72	72	567	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	51	0	56			
Peak Hour Factor, PHF	0.71	0.50	1.00			
Peak-15 Minute Volume	18	0	14			
Hourly Flow Rate, HFR	71	0	56			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			3	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday PeakBase
Intersection: Route 40/ SR 381 S
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and SR 381 S
East/West Street: Route 40
North/South Street: SR 381 S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		579	47	53	397	
Peak-Hour Factor, PHF		0.84	0.65	0.74	0.84	
Hourly Flow Rate, HFR		689	72	71	472	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1 0		0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	31	0	69			
Peak Hour Factor, PHF	0.86	0.50	0.78			
Hourly Flow Rate, HFR	36	0	88			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			3	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		71		124				
C(m) (vph)		847		280				
v/c		0.08		0.44				
95% queue length		0.27		2.15				
Control Delay		9.6		27.7				
LOS		A		D				
Approach Delay				27.7				
Approach LOS				D				

HCS+: Unsignalized Intersections Release 5.2

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday PeakBase
Intersection: Route 40/ SR 381 S
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and SR 381 S
East/West Street: Route 40
North/South Street: SR 381 S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		579	47	53	397	
Peak-Hour Factor, PHF		0.84	0.65	0.74	0.84	
Peak-15 Minute Volume		172	18	18	118	
Hourly Flow Rate, HFR		689	72	71	472	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	31	0	69			
Peak Hour Factor, PHF	0.86	0.50	0.78			
Peak-15 Minute Volume	9	0	22			
Hourly Flow Rate, HFR	36	0	88			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			3	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:	TR
Agency/Co.:	McMillen Engineering
Date Performed:	10/2/2005
Analysis Time Period:	Weekday PM Base
Intersection:	Route 40/SR 381 N
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	2006
Project ID: Route 40 and SR 381 N	
East/West Street:	Route 40
North/South Street:	SR 381 N
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	61	503			520	17
Peak-Hour Factor, PHF	0.88	0.92			0.91	0.85
Hourly Flow Rate, HFR	69	546			571	19
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				41	0	48
Peak Hour Factor, PHF				0.71	0.50	0.68
Hourly Flow Rate, HFR				57	0	70
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-7	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	69						127	
C(m) (vph)	981						274	
v/c	0.07						0.46	
95% queue length	0.23						2.30	
Control Delay	8.9						29.0	
LOS	A						D	
Approach Delay							29.0	
Approach LOS							D	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/SR 381 N
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and SR 381 N
East/West Street: Route 40
North/South Street: SR 381 N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	61	503			520	17
Peak-Hour Factor, PHF	0.88	0.92			0.91	0.85
Peak-15 Minute Volume	17	137			143	5
Hourly Flow Rate, HFR	69	546			571	19
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				41	0	48
Peak Hour Factor, PHF				0.71	0.50	0.68
Peak-15 Minute Volume				14	0	18
Hourly Flow Rate, HFR				57	0	70
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-7	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Peak Base
Intersection: Route 40/SR 381 N
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and SR 381 N
East/West Street: Route 40
North/South Street: SR 381 N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	81	567			401	59
Peak-Hour Factor, PHF	0.91	0.84			0.84	0.78
Hourly Flow Rate, HFR	89	675			477	75
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				42	0	49
Peak Hour Factor, PHF				0.70	0.50	0.77
Hourly Flow Rate, HFR				60	0	63
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-7	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	89						123	
C(m) (vph)	1013						237	
v/c	0.09						0.52	
95% queue length	0.29						2.72	
Control Delay	8.9						35.5	
LOS	A						E	
Approach Delay							35.5	
Approach LOS							E	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Peak Base
Intersection: Route 40/SR 381 N
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and SR 381 N
East/West Street: Route 40
North/South Street: SR 381 N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	81	567			401	59
Peak-Hour Factor, PHF	0.91	0.84			0.84	0.78
Peak-15 Minute Volume	22	169			119	19
Hourly Flow Rate, HFR	89	675			477	75
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				42	0	49
Peak Hour Factor, PHF				0.70	0.50	0.77
Peak-15 Minute Volume				15	0	16
Hourly Flow Rate, HFR				60	0	63
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-7	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:	TR
Agency/Co.:	McMillen Engineering
Date Performed:	10/2/2005
Analysis Time Period:	Weekday PM Base
Intersection:	Route 40/ Hawes Road
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	2006
Project ID:	Route 40 and Hawes Road
East/West Street:	Route 40
North/South Street:	Hawes Road
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	21	524			376	37
Peak-Hour Factor, PHF	0.66	0.92			0.91	0.66
Hourly Flow Rate, HFR	31	569			413	56
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				37	0	42
Peak Hour Factor, PHF				0.62	0.50	0.66
Hourly Flow Rate, HFR				59	0	63
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-10	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	31						122	
C(m) (vph)	1087						347	
v/c	0.03						0.35	
95% queue length	0.09						1.54	
Control Delay	8.4						20.9	
LOS	A						C	
Approach Delay							20.9	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Hawes Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Hawes Road
East/West Street: Route 40
North/South Street: Hawes Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	21	524			376	37
Peak-Hour Factor, PHF	0.66	0.92			0.91	0.66
Peak-15 Minute Volume	8	142			103	14
Hourly Flow Rate, HFR	31	569			413	56
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				37	0	42
Peak Hour Factor, PHF				0.62	0.50	0.66
Peak-15 Minute Volume				15	0	16
Hourly Flow Rate, HFR				59	0	63
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:	TR
Agency/Co.:	McMillen Engineering
Date Performed:	10/2/2005
Analysis Time Period:	Saturday Base
Intersection:	Route 40/ Hawes Road
Jurisdiction:	
Units:	U. S. Customary
Analysis Year:	2006
Project ID:	Route 40 and Hawes Road
East/West Street:	Route 40
North/South Street:	Hawes Road
Intersection Orientation:	EW
Study period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	25	610			392	21
Peak-Hour Factor, PHF	0.78	0.84			0.84	0.58
Hourly Flow Rate, HFR	32	726			466	36
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				19	0	14
Peak Hour Factor, PHF				0.79	0.50	0.58
Hourly Flow Rate, HFR				24	0	24
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-10	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	32						48	
C(m) (vph)	1057						274	
v/c	0.03						0.18	
95% queue length	0.09						0.62	
Control Delay	8.5						20.9	
LOS	A						C	
Approach Delay							20.9	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Hawes Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Hawes Road
East/West Street: Route 40
North/South Street: Hawes Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	25	610			392	21
Peak-Hour Factor, PHF	0.78	0.84			0.84	0.58
Peak-15 Minute Volume	8	182			117	9
Hourly Flow Rate, HFR	32	726			466	36
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				19	0	14
Peak Hour Factor, PHF				0.79	0.50	0.58
Peak-15 Minute Volume				6	0	6
Hourly Flow Rate, HFR				24	0	24
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Marker Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Marker/Proposed Main Driveway
East/West Street: Route 40
North/South Street: Marker Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		564	8	6	414	
Peak-Hour Factor, PHF		0.94	0.67	0.50	0.94	
Hourly Flow Rate, HFR		600	11	12	440	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1 0		0 1		
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	3	0	10			
Peak Hour Factor, PHF	0.75	0.50	0.62			
Hourly Flow Rate, HFR	4	0	16			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		-5			3	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		12		20				
C(m) (vph)		963		409				
v/c		0.01		0.05				
95% queue length		0.04		0.15				
Control Delay		8.8		14.3				
LOS		A		B				
Approach Delay				14.3				
Approach LOS				B				

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Marker Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Marker/Proposed Main Driveway
East/West Street: Route 40
North/South Street: Marker Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		564	8	6	414	
Peak-Hour Factor, PHF		0.94	0.67	0.50	0.94	
Peak-15 Minute Volume		150	3	3	110	
Hourly Flow Rate, HFR		600	11	12	440	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	3	0	10			
Peak Hour Factor, PHF	0.75	0.50	0.62			
Peak-15 Minute Volume	1	0	4			
Hourly Flow Rate, HFR	4	0	16			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		-5			3	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Marker Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Marker/Proposed Main Driveway
East/West Street: Route 40
North/South Street: Marker Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		552	3	5	409	
Peak-Hour Factor, PHF		0.80	0.75	0.62	0.87	
Hourly Flow Rate, HFR		689	4	8	470	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4	0	5			
Peak Hour Factor, PHF	1.00	0.50	0.42			
Hourly Flow Rate, HFR	4	0	11			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		-5			3	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1	0			
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		8		15				
C(m) (vph)		898		341				
v/c		0.01		0.04				
95% queue length		0.03		0.14				
Control Delay		9.0		16.0				
LOS		A		C				
Approach Delay				16.0				
Approach LOS				C				

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Marker Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Marker/Proposed Main Driveway
East/West Street: Route 40
North/South Street: Marker Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume		552	3	5	409	
Peak-Hour Factor, PHF		0.80	0.75	0.62	0.87	
Peak-15 Minute Volume		172	1	2	118	
Hourly Flow Rate, HFR		689	4	8	470	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	4	0	5			
Peak Hour Factor, PHF	1.00	0.50	0.42			
Peak-15 Minute Volume	1	0	3			
Hourly Flow Rate, HFR	4	0	11			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		-5			3	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/Smith School Hse Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Smith School House Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	16	558			394	8
Peak-Hour Factor, PHF	0.67	0.94			0.94	0.67
Hourly Flow Rate, HFR	23	593			419	11
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				12	0	26
Peak Hour Factor, PHF				0.75	0.38	0.93
Hourly Flow Rate, HFR				16	0	27
Percent Heavy Vehicles				3	3	3
Percent Grade (%)					10	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	23						43	
C(m) (vph)	1124						392	
v/c	0.02						0.11	
95% queue length	0.06						0.37	
Control Delay	8.3						15.3	
LOS	A						C	
Approach Delay							15.3	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/Smith School Hse Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Smith School House Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	16	558			394	8
Peak-Hour Factor, PHF	0.67	0.94			0.94	0.67
Peak-15 Minute Volume	6	148			105	3
Hourly Flow Rate, HFR	23	593			419	11
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				12	0	26
Peak Hour Factor, PHF				0.75	0.38	0.93
Peak-15 Minute Volume				4	0	7
Hourly Flow Rate, HFR				16	0	27
Percent Heavy Vehicles				3	3	3
Percent Grade (%)					10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Peak Base
Intersection: Route 40/Smith School Hse Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Smith School House Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	14	504			402	10
Peak-Hour Factor, PHF	0.50	0.87			0.87	0.50
Hourly Flow Rate, HFR	28	579			462	20
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				8	0	12
Peak Hour Factor, PHF				0.40	0.38	0.60
Hourly Flow Rate, HFR				19	0	19
Percent Heavy Vehicles				3	3	3
Percent Grade (%)					10	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	28						38	
C(m) (vph)	1075						325	
v/c	0.03						0.12	
95% queue length	0.08						0.39	
Control Delay	8.4						17.5	
LOS	A						C	
Approach Delay							17.5	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Peak Base
Intersection: Route 40/Smith School Hse Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Smith School House Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	14	504			402	10
Peak-Hour Factor, PHF	0.50	0.87			0.87	0.50
Peak-15 Minute Volume	7	145			116	5
Hourly Flow Rate, HFR	28	579			462	20
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				8	0	12
Peak Hour Factor, PHF				0.40	0.38	0.60
Peak-15 Minute Volume				5	0	5
Hourly Flow Rate, HFR				19	0	19
Percent Heavy Vehicles				3	3	3
Percent Grade (%)					10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Dinner Bell Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Dinner Bell Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	26	508	47	14	360	38
Peak-Hour Factor, PHF	0.81	0.94	0.78	0.58	0.94	0.79
Hourly Flow Rate, HFR	32	540	60	24	382	48
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	26	7	16	36	3	15
Peak Hour Factor, PHF	0.81	0.58	0.67	0.75	0.38	0.63
Hourly Flow Rate, HFR	32	12	23	48	7	23
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	32	24		67			78	
C(m) (vph)	1124	972		224			210	
v/c	0.03	0.02		0.30			0.37	
95% queue length	0.09	0.08		1.21			1.61	
Control Delay	8.3	8.8		27.8			31.9	
LOS	A	A		D			D	
Approach Delay				27.8			31.9	
Approach LOS				D			D	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Dinner Bell Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Dinner Bell Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	26	508	47	14	360	38
Peak-Hour Factor, PHF	0.81	0.94	0.78	0.58	0.94	0.79
Peak-15 Minute Volume	8	135	15	6	96	12
Hourly Flow Rate, HFR	32	540	60	24	382	48
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	26	7	16	36	3	15
Peak Hour Factor, PHF	0.81	0.58	0.67	0.75	0.38	0.63
Peak-15 Minute Volume	8	3	6	12	2	6
Hourly Flow Rate, HFR	32	12	23	48	7	23
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No /			No /	
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Dinner Bell Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Dinner Bell Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1 L	2 T	3 R	4 L	5 T	6 R
Volume	19	504	28	9	342	15
Peak-Hour Factor, PHF	0.75	0.87	0.63	0.68	0.87	0.70
Hourly Flow Rate, HFR	25	579	44	13	393	21
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume	54	2	15	16	3	15
Peak Hour Factor, PHF	0.84	0.50	0.42	0.50	0.75	0.62
Hourly Flow Rate, HFR	64	4	35	32	4	24
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	25	13		103			60	
C(m) (vph)	1140	953		225			240	
v/c	0.02	0.01		0.46			0.25	
95% queue length	0.07	0.04		2.21			0.96	
Control Delay	8.2	8.8		33.8			24.9	
LOS	A	A		D			C	
Approach Delay				33.8			24.9	
Approach LOS				D			C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/2/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Dinner Bell Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006
Project ID: Route 40 and Dinner Bell Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	19	504	28	9	342	15
Peak-Hour Factor, PHF	0.75	0.87	0.63	0.68	0.87	0.70
Peak-15 Minute Volume	6	145	11	3	98	5
Hourly Flow Rate, HFR	25	579	44	13	393	21
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	54	2	15	16	3	15
Peak Hour Factor, PHF	0.84	0.50	0.42	0.50	0.75	0.62
Peak-15 Minute Volume	16	1	9	8	1	6
Hourly Flow Rate, HFR	64	4	35	32	4	24
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/		No	/
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

APPENDIX 2

CAPACITY ANALYSIS
(2006 DEVELOPED CONDITIONS)

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TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SR 381S
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		511	54	52	513	
Peak-Hour Factor, PHF		0.92	0.75	0.72	0.91	
Hourly Flow Rate, HFR		555	72	72	563	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1 0		0 1		
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	51	0	57			
Peak Hour Factor, PHF	0.71	1.00	1.00			
Hourly Flow Rate, HFR	71	0	57			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		72		128				
C(m) (vph)		950		236				
v/c		0.08		0.54				
95% queue length		0.25		2.92				
Control Delay		9.1		37.0				
LOS		A		E				
Approach Delay				37.0				
Approach LOS				E				

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SR 381S
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		511	54	52	513	
Peak-Hour Factor, PHF		0.92	0.75	0.72	0.91	
Peak-15 Minute Volume		139	18	18	141	
Hourly Flow Rate, HFR		555	72	72	563	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	51	0	57			
Peak Hour Factor, PHF	0.71	1.00	1.00			
Peak-15 Minute Volume	18	0	14			
Hourly Flow Rate, HFR	71	0	57			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 /. SR 381S
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		560	47	50	372	
Peak-Hour Factor, PHF		0.84	0.65	0.74	0.84	
Hourly Flow Rate, HFR		666	72	67	442	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1 0		0 1		
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	31	0	68			
Peak Hour Factor, PHF	0.86	1.00	0.78			
Hourly Flow Rate, HFR	36	0	87			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		67		123				
C(m) (vph)		863		297				
v/c		0.08		0.41				
95% queue length		0.25		1.95				
Control Delay		9.5		25.4				
LOS		A		D				
Approach Delay				25.4				
Approach LOS				D				

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SR 381S
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		560	47	50	372	
Peak-Hour Factor, PHF		0.84	0.65	0.74	0.84	
Peak-15 Minute Volume		167	18	17	111	
Hourly Flow Rate, HFR		666	72	67	442	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	31	0	68			
Peak Hour Factor, PHF	0.86	1.00	0.78			
Peak-15 Minute Volume	9	0	22			
Hourly Flow Rate, HFR	36	0	87			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SR 381N
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	61	507			517	17
Peak-Hour Factor, PHF	0.88	0.92			0.91	0.85
Hourly Flow Rate, HFR	69	551			568	19
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				42	0	48
Peak Hour Factor, PHF				0.71	1.00	0.68
Hourly Flow Rate, HFR				59	0	70
Percent Heavy Vehicles				3	0	3
Percent Grade (%)		0			-7	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	69						129	
C(m) (vph)	983						270	
v/c	0.07						0.48	
95% queue length	0.23						2.41	
Control Delay	8.9						30.0	
LOS	A						D	
Approach Delay							30.0	
Approach LOS							D	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SR 381N
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	61	507			517	17
Peak-Hour Factor, PHF	0.88	0.92			0.91	0.85
Peak-15 Minute Volume	17	138			142	5
Hourly Flow Rate, HFR	69	551			568	19
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				42	0	48
Peak Hour Factor, PHF				0.71	1.00	0.68
Peak-15 Minute Volume				15	0	18
Hourly Flow Rate, HFR				59	0	70
Percent Heavy Vehicles				3	0	3
Percent Grade (%)		0			-7	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SR 381N
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	81	547			373	56
Peak-Hour Factor, PHF	0.91	0.84			0.84	0.78
Hourly Flow Rate, HFR	89	651			444	71
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				40	0	49
Peak Hour Factor, PHF				0.70	1.00	0.77
Hourly Flow Rate, HFR				57	0	63
Percent Heavy Vehicles				3	0	3
Percent Grade (%)		0			-7	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	89						120	
C(m) (vph)	1046						260	
v/c	0.09						0.46	
95% queue length	0.28						2.28	
Control Delay	8.8						30.2	
LOS	A						D	
Approach Delay							30.2	
Approach LOS							D	

HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SR 381N
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	81	547			373	56
Peak-Hour Factor, PHF	0.91	0.84			0.84	0.78
Peak-15 Minute Volume	22	163			111	18
Hourly Flow Rate, HFR	89	651			444	71
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				40	0	49
Peak Hour Factor, PHF				0.70	1.00	0.77
Peak-15 Minute Volume				14	0	16
Hourly Flow Rate, HFR				57	0	63
Percent Heavy Vehicles				3	0	3
Percent Grade (%)		0			-7	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / HAWES ROAD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: HAWES ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	21	529			373	37
Peak-Hour Factor, PHF	0.66	0.92			0.91	0.66
Hourly Flow Rate, HFR	31	574			409	56
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				37	0	42
Peak Hour Factor, PHF				0.62	1.00	0.66
Hourly Flow Rate, HFR				59	0	63
Percent Heavy Vehicles				3	0	3
Percent Grade (%)		0			-10	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	31						122	
C(m) (vph)	1091						348	
v/c	0.03						0.35	
95% queue length	0.09						1.54	
Control Delay	8.4						20.8	
LOS	A						C	
Approach Delay							20.8	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / HAWES ROAD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: HAWES ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	21	529			373	37
Peak-Hour Factor, PHF	0.66	0.92			0.91	0.66
Peak-15 Minute Volume	8	144			102	14
Hourly Flow Rate, HFR	31	574			409	56
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				37	0	42
Peak Hour Factor, PHF				0.62	1.00	0.66
Peak-15 Minute Volume				15	0	16
Hourly Flow Rate, HFR				59	0	63
Percent Heavy Vehicles				3	0	3
Percent Grade (%)		0			-10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / HAWES ROAD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: HAWES ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	25	588			361	21
Peak-Hour Factor, PHF	0.78	0.84			0.84	0.58
Hourly Flow Rate, HFR	32	700			429	36
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				19	0	14
Peak Hour Factor, PHF				0.79	1.00	0.58
Hourly Flow Rate, HFR				24	0	24
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-10	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	32						48	
C(m) (vph)	1091						297	
v/c	0.03						0.16	
95% queue length	0.09						0.57	
Control Delay	8.4						19.4	
LOS	A						C	
Approach Delay							19.4	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / HAWES ROAD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: HAWES ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	25	588			361	21
Peak-Hour Factor, PHF	0.78	0.84			0.84	0.58
Peak-15 Minute Volume	8	175			107	9
Hourly Flow Rate, HFR	32	700			429	36
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				19	0	14
Peak Hour Factor, PHF				0.79	1.00	0.58
Peak-15 Minute Volume				6	0	6
Hourly Flow Rate, HFR				24	0	24
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SEC. DRIVE
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SECONDARY DRIVEWAY
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	31	535			386	15
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	34	594			428	16
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				14	0	28
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				15	0	31
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-8	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	34						46	
C(m) (vph)	1111						398	
v/c	0.03						0.12	
95% queue length	0.09						0.39	
Control Delay	8.3						15.2	
LOS	A						C	
Approach Delay							15.2	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SEC. DRIVE
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SECONDARY DRIVEWAY
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	31	535			386	15
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Peak-15 Minute Volume	9	149			107	4
Hourly Flow Rate, HFR	34	594			428	16
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				14	0	28
Peak Hour Factor, PHF				0.90	0.90	0.90
Peak-15 Minute Volume				4	0	8
Hourly Flow Rate, HFR				15	0	31
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-8	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SEC. DRIVE
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SECONDARY DRIVEWAY
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	34	573			352	17
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	37	636			391	18
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				15	0	30
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				16	0	33
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-8	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	37						49	
C(m) (vph)	1144						400	
v/c	0.03						0.12	
95% queue length	0.10						0.41	
Control Delay	8.3						15.3	
LOS	A						C	
Approach Delay							15.3	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SEC. DRIVE
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SECONDARY DRIVEWAY
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	34	573			352	17
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Peak-15 Minute Volume	9	159			98	5
Hourly Flow Rate, HFR	37	636			391	18
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				15	0	30
Peak Hour Factor, PHF				0.90	0.90	0.90
Peak-15 Minute Volume				4	0	8
Hourly Flow Rate, HFR				16	0	33
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-8	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Signalized Intersections Release 5.2

Analyst: RHH
Agency: McMILLEN ENGINEERING
Date: 12/5/2005
Period: WEEKDAY PM PEAK DEVELOPED
Project ID: 2005-319
E/W St: ROUTE 40

Inter.: ROUTE 40/MAIN DRIVE
Area Type: All other areas
Jurisd:
Year : 2006
N/S St: MAIN DRIVE/MARKER ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Volume	62	490	8	6	342	47	3	0	10	42	0	56
Lane Width	10.0	11.0		10.0	11.0			10.0			12.0	16.0
RTOR Vol			2			12			3			14

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
NB Right					EB Right			
B Right					WB Right			
Green	7.0	33.0				12.0		
Yellow	4.0	4.0				4.0		
All Red	2.0	2.0				2.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	151	1511	0.46	0.10	31.9	C		
TR	775	1644	0.71	0.47	17.8	B	19.3	B
Westbound								
L	159	1588	0.04	0.10	28.6	C		
TR	805	1707	0.52	0.47	13.6	B	13.8	B
Northbound								
LTR	241	1408	0.05	0.17	24.3	C	24.3	C
Southbound								
LT	215	1256	0.22	0.17	25.5	C	25.2	C
	305	1777	0.15	0.17	24.9	C		

Intersection Delay = 17.8 (sec/veh) Intersection LOS = B

Phone: Fax:
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OPERATIONAL ANALYSIS

Analyst:	RHH
Agency/Co.:	McMILLEN ENGINEERING
Date Performed:	12/5/2005
Analysis Time Period:	WEEKDAY PM PEAK DEVELOPED
Intersection:	ROUTE 40/MAIN DRIVE
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2006

Project ID: 2005-319
E/W St: ROUTE 40 N/S St: MAIN DRIVE/MARKER ROAD

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	62	490	8	6	342	47	3	0	10	42	0	56
% Heavy Veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PK 15 Vol	17	136	2	2	95	13	1	0	3	12	0	16
.i Ln Vol												
% Grade		5			-5			-5			0	
Ideal Sat	1800	1800		1800	1800			1800			1800	1900
ParkExist												
NumPark												
No. Lanes	1	1	0	1	1	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Lane Width	10.0	11.0		10.0	11.0			10.0			12.0	16.0
RTOR Vol			2			12			3			14
Adj Flow	69	551		7	419			11			47	47
%InSharedLn												
Prop LTs		0.000			0.000			0.273			1.000	
Prop RTs		0.013			0.093			0.727			0.000	1.000
Peds Bikes	0			0			0			0		
Buses	0	0		0	0			0			0	0
%InProtPhase												

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Arriv. Type	3	3		3	3			3			3	3
'nit Ext.	3.0	3.0		3.0	3.0			3.0			3.0	3.0
. Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Ext of g	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Ped Min g		3.2			3.2			3.2			3.2	

HCS+: Signalized Intersections Release 5.2

Analyst: RHH
Agency: McMILLEN ENGINEERING
Date: 12/5/2005
Period: SATURDAY AM PEAK DEVELOPED
Project ID: 2005-319
E/W St: ROUTE 40

Inter.: ROUTE 40/MAIN DRIVE
Area Type: All other areas
Jurisd:
Year : 2006

N/S St: MAIN DRIVE/MARKER ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Volume	68	443	3	5	305	51	4	0	5	45	0	60
Lane Width	10.0	11.0		10.0	11.0			10.0			12.0	16.0
RTOR Vol			1			13			1			15

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru		A				Thru	A			
	Right		A				Right	A			
	Peds						Peds				
WB	Left	A				SB	Left	A			
	Thru		A				Thru	A			
	Right		A				Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0	33.0					12.0			
Yellow		4.0	4.0					4.0			
All Red		2.0	2.0					2.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	151	1511	0.50	0.10	32.5	C		
TR	776	1646	0.64	0.47	15.7	B	18.0	B
Westbound								
L	159	1588	0.04	0.10	28.6	C		
TR	803	1703	0.47	0.47	13.0	B	13.3	B
Northbound								
LTR	236	1378	0.03	0.17	24.2	C	24.2	C
Southbound								
LT	216	1260	0.23	0.17	25.6	C	25.3	C
R	305	1777	0.16	0.17	25.0	C		

Intersection Delay = 17.0 (sec/veh) Intersection LOS = B

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 12/5/2005
Analysis Time Period: SATURDAY AM PEAK DEVELOPED
Intersection: ROUTE 40/MAIN DRIVE
Area Type: All other areas
Jurisdiction:
Analysis Year: 2006
Project ID: 2005-319
E/W St: ROUTE 40 N/S St: MAIN DRIVE/MARKER ROAD

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	68	443	3	5	305	51	4	0	5	45	0	60
% Heavy Veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PK 15 Vol	19	123	1	2	85	14	1	0	2	13	0	17
Hi Ln Vol												
% Grade		5			-5			-5			0	
Ideal Sat	1800	1800		1800	1800			1800			1800	1900
ParkExist												
NumPark												
No. Lanes	1	1	0	1	1	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Lane Width	10.0	11.0		10.0	11.0			10.0			12.0	16.0
RTOR Vol			1			13			1			15
Adj Flow	76	494		6	381			8			50	50
%InSharedLn												
Prop LTs		0.000			0.000			0.500			1.000	
Prop RTs		0.004			0.110			0.500			0.000	1.000
Peds Bikes		0			0			0			0	
Buses	0	0		0	0			0			0	0
%InProtPhase												

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Arriv. Type	3	3		3	3			3			3	3
Unit Ext.	3.0	3.0		3.0	3.0			3.0			3.0	3.0
p Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Ext of g	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Ped Min g		3.2			3.2			3.2			3.2	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SMITH SCHOOL
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SMITH SCHOOL HOUSE RD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	16	554			396	8
Peak-Hour Factor, PHF	0.67	0.94			0.94	0.67
Hourly Flow Rate, HFR	23	589			421	11
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				12	0	26
Peak Hour Factor, PHF				0.75	0.90	0.93
Hourly Flow Rate, HFR				16	0	27
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			10	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	23						43	
C(m) (vph)	1122						392	
v/c	0.02						0.11	
95% queue length	0.06						0.37	
Control Delay	8.3						15.3	
LOS	A						C	
Approach Delay							15.3	
Approach LOS							C	

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Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SMITH SCHOOL
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SMITH SCHOOL HOUSE RD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	16	554			396	8
Peak-Hour Factor, PHF	0.67	0.94			0.94	0.67
Peak-15 Minute Volume	6	147			105	3
Hourly Flow Rate, HFR	23	589			421	11
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				12	0	26
Peak Hour Factor, PHF				0.75	0.90	0.93
Peak-15 Minute Volume				4	0	7
Hourly Flow Rate, HFR				16	0	27
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SMITH SCHOOL
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SMITH SCHOOL HOUSE RD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	14	523			446	10
Peak-Hour Factor, PHF	0.50	0.87			0.87	0.50
Hourly Flow Rate, HFR	28	601			512	20
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				8	0	12
Peak Hour Factor, PHF				0.40	0.90	0.60
Hourly Flow Rate, HFR				19	0	19
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			10	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	28						38	
C(m) (vph)	1030						296	
v/c	0.03						0.13	
95% queue length	0.08						0.44	
Control Delay	8.6						18.9	
LOS	A						C	
Approach Delay							18.9	
Approach LOS							C	

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E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SMITH SCHOOL
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SMITH SCHOOL HOUSE RD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	14	523			446	10
Peak-Hour Factor, PHF	0.50	0.87			0.87	0.50
Peak-15 Minute Volume	7	150			128	5
Hourly Flow Rate, HFR	28	601			512	20
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				8	0	12
Peak Hour Factor, PHF				0.40	0.90	0.60
Peak-15 Minute Volume				5	0	5
Hourly Flow Rate, HFR				19	0	19
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / DINNER BELL RD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: DINNER BELL ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	26	504	47	14	362	38
Peak-Hour Factor, PHF	0.81	0.94	0.78	0.58	0.94	0.79
Hourly Flow Rate, HFR	32	536	60	24	385	48
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	26	7	16	36	3	15
Peak Hour Factor, PHF	0.81	0.58	0.67	0.75	0.38	0.63
Hourly Flow Rate, HFR	32	12	23	48	7	23
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/		No	/
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	32	24		67			78	
C(m) (vph)	1121	976		225			210	
v/c	0.03	0.02		0.30			0.37	
95% queue length	0.09	0.08		1.20			1.61	
Control Delay	8.3	8.8		27.6			31.9	
LOS	A	A		D			D	
Approach Delay				27.6			31.9	
Approach LOS				D			D	

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Phone: Fax:
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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / DINNER BELL RD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: DINNER BELL ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	26	504	47	14	362	38
Peak-Hour Factor, PHF	0.81	0.94	0.78	0.58	0.94	0.79
Peak-15 Minute Volume	8	134	15	6	96	12
Hourly Flow Rate, HFR	32	536	60	24	385	48
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	26	7	16	36	3	15
Peak Hour Factor, PHF	0.81	0.58	0.67	0.75	0.38	0.63
Peak-15 Minute Volume	8	3	6	12	2	6
Hourly Flow Rate, HFR	32	12	23	48	7	23
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/			No /
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / DINNER BELL RD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: DINNER BELL ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	19	484	28	9	326	15
Peak-Hour Factor, PHF	0.75	0.87	0.63	0.68	0.87	0.70
Hourly Flow Rate, HFR	25	556	44	13	374	21
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	54	2	15	16	3	15
Peak Hour Factor, PHF	0.84	0.50	0.42	0.50	0.75	0.62
Hourly Flow Rate, HFR	64	4	35	32	4	24
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	25	13		103			60	
C(m) (vph)	1158	972		240			255	
v/c	0.02	0.01		0.43			0.24	
95% queue length	0.07	0.04		2.02			0.89	
Control Delay	8.2	8.8		30.8			23.4	
LOS	A	A		D			C	
Approach Delay				30.8			23.4	
Approach LOS				D			C	

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Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / DINNER BELL RD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2006
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: DINNER BELL ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	19	484	28	9	326	15
Peak-Hour Factor, PHF	0.75	0.87	0.63	0.68	0.87	0.70
Peak-15 Minute Volume	6	139	11	3	94	5
Hourly Flow Rate, HFR	25	556	44	13	374	21
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0 1 0			0 1 0		
Configuration	LTR			LTR		
Upstream Signal?	No			No		

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	54	2	15	16	3	15
Peak Hour Factor, PHF	0.84	0.50	0.42	0.50	0.75	0.62
Peak-15 Minute Volume	16	1	9	8	1	6
Hourly Flow Rate, HFR	64	4	35	32	4	24
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No /			No /	
RT Channelized?						
Lanes	0 1 0			0 1 0		
Configuration	LTR			LTR		

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

APPENDIX 3

CAPACITY ANALYSIS
(2016 BASE CONDITIONS)

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	TR
Agency/Co.:	McMillen Engineering
Date Performed:	10/9/2005
Analysis Time Period:	Weekday PM Base
Intersection:	Route 40/ SR 381 S
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	2016
Project ID:	Route 40 and SR 381 S
East/West Street:	Route 40
North/South Street:	SR 381 S
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		559	59	57	568	
Peak-Hour Factor, PHF		0.92	0.75	0.72	0.91	
Hourly Flow Rate, HFR		607	78	79	624	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1 0		0 1		
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	56	0	62			
Peak Hour Factor, PHF	0.71	0.50	1.00			
Hourly Flow Rate, HFR	78	0	62			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			3	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		79		140				
C(m) (vph)		904		196				
v/c		0.09		0.71				
95% queue length		0.29		4.55				
Control Delay		9.4		59.3				
LOS		A		F				
Approach Delay				59.3				
Approach LOS				F				

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Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ SR 381 S
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and SR 381 S
East/West Street: Route 40
North/South Street: SR 381 S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		559	59	57	568	
Peak-Hour Factor, PHF		0.92	0.75	0.72	0.91	
Peak-15 Minute Volume		152	20	20	156	
Hourly Flow Rate, HFR		607	78	79	624	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	56	0	62			
Peak Hour Factor, PHF	0.71	0.50	1.00			
Peak-15 Minute Volume	20	0	16			
Hourly Flow Rate, HFR	78	0	62			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			3	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	TR
Agency/Co.:	McMillen Engineering
Date Performed:	10/9/2005
Analysis Time Period:	Saturday PeakBase
Intersection:	Route 40/ SR 381 S
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	2016
Project ID: Route 40 and SR 381 S	
East/West Street:	Route 40
North/South Street:	SR 381 S
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		637	52	58	437	
Peak-Hour Factor, PHF		0.84	0.65	0.74	0.84	
Hourly Flow Rate, HFR		758	80	78	520	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1 0		0 1		
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	34	0	76			
Peak Hour Factor, PHF	0.86	0.50	0.78			
Hourly Flow Rate, HFR	39	0	97			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			3	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		78		136				
C(m) (vph)		792		240				
v/c		0.10		0.57				
95% queue length		0.33		3.16				
Control Delay		10.0+		38.0				
OS		B		E				
Approach Delay				38.0				
Approach LOS				E				

HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday PeakBase
Intersection: Route 40/ SR 381 S
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and SR 381 S
East/West Street: Route 40
North/South Street: SR 381 S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		637	52	58	437	
Peak-Hour Factor, PHF		0.84	0.65	0.74	0.84	
Peak-15 Minute Volume		190	20	20	130	
Hourly Flow Rate, HFR		758	80	78	520	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	34	0	76			
Peak Hour Factor, PHF	0.86	0.50	0.78			
Peak-15 Minute Volume	10	0	24			
Hourly Flow Rate, HFR	39	0	97			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			3	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	TR
Agency/Co.:	McMillen Engineering
Date Performed:	10/9/2005
Analysis Time Period:	Weekday PM Base
Intersection:	Route 40/SR 381 N
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	2016
Project ID:	Route 40 and SR 381 N
East/West Street:	Route 40
North/South Street:	SR 381 N
Intersection Orientation:	EW
Study period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	67	554			572	19
Peak-Hour Factor, PHF	0.88	0.92			0.91	0.85
Hourly Flow Rate, HFR	76	602			628	22
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				45	0	53
Peak Hour Factor, PHF				0.71	0.50	0.68
Hourly Flow Rate, HFR				63	0	77
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-7	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	76						140	
C(m) (vph)	931						232	
v/c	0.08						0.60	
95% queue length	0.27						3.50	
Control Delay	9.2						41.6	
LOS	A						E	
Approach Delay							41.6	
Approach LOS							E	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/SR 381 N
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and SR 381 N
East/West Street: Route 40
North/South Street: SR 381 N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	67	554			572	19
Peak-Hour Factor, PHF	0.88	0.92			0.91	0.85
Peak-15 Minute Volume	19	151			157	6
Hourly Flow Rate, HFR	76	602			628	22
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				45	0	53
Peak Hour Factor, PHF				0.71	0.50	0.68
Peak-15 Minute Volume				16	0	19
Hourly Flow Rate, HFR				63	0	77
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-7	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday Peak Base
Intersection: Route 40/SR 381 N
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and SR 381 N
East/West Street: Route 40
North/South Street: SR 381 N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	89	624			441	65
Peak-Hour Factor, PHF	0.91	0.84			0.84	0.78
Hourly Flow Rate, HFR	97	742			525	83
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				46	0	54
Peak Hour Factor, PHF				0.70	0.50	0.77
Hourly Flow Rate, HFR				65	0	70
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-7	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	97						135	
C(m) (vph)	966						201	
v/c	0.10						0.67	
95% queue length	0.33						4.10	
Control Delay	9.1						53.3	
LOS	A						F	
Approach Delay							53.3	
Approach LOS							F	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday Peak Base
Intersection: Route 40/SR 381 N
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and SR 381 N
East/West Street: Route 40
North/South Street: SR 381 N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	89	624			441	65
Peak-Hour Factor, PHF	0.91	0.84			0.84	0.78
Peak-15 Minute Volume	24	186			131	21
Hourly Flow Rate, HFR	97	742			525	83
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				46	0	54
Peak Hour Factor, PHF				0.70	0.50	0.77
Peak-15 Minute Volume				16	0	18
Hourly Flow Rate, HFR				65	0	70
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-7	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:	TR
Agency/Co.:	McMillen Engineering
Date Performed:	10/9/2005
Analysis Time Period:	Weekday PM Base
Intersection:	Route 40/ Hawes Road
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	2016
Project ID:	Route 40 and Hawes Road
East/West Street:	Route 40
North/South Street:	Hawes Road
Intersection Orientation:	EW
Study period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	23	576			414	41
Peak-Hour Factor, PHF	0.66	0.92			0.91	0.66
Hourly Flow Rate, HFR	34	626			454	62
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				41	0	46
Peak Hour Factor, PHF				0.62	0.50	0.66
Hourly Flow Rate, HFR				66	0	69
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-10	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	34						135	
C(m) (vph)	1045						305	
v/c	0.03						0.44	
95% queue length	0.10						2.16	
Control Delay	8.6						25.9	
LOS	A						D	
Approach Delay							25.9	
Approach LOS							D	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Hawes Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Hawes Road
East/West Street: Route 40
North/South Street: Hawes Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	23	576			414	41
Peak-Hour Factor, PHF	0.66	0.92			0.91	0.66
Peak-15 Minute Volume	9	157			114	16
Hourly Flow Rate, HFR	34	626			454	62
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				41	0	46
Peak Hour Factor, PHF				0.62	0.50	0.66
Peak-15 Minute Volume				17	0	17
Hourly Flow Rate, HFR				66	0	69
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Hawes Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Hawes Road
East/West Street: Route 40
North/South Street: Hawes Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	28	671			431	23
Peak-Hour Factor, PHF	0.78	0.84			0.84	0.58
Hourly Flow Rate, HFR	35	798			513	39
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				21	0	15
Peak Hour Factor, PHF				0.79	0.50	0.58
Hourly Flow Rate, HFR				26	0	25
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-10	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	35						51	
C(m) (vph)	1013						233	
v/c	0.03						0.22	
95% queue length	0.11						0.81	
Control Delay	8.7						24.7	
LOS	A						C	
Approach Delay							24.7	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Hawes Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Hawes Road
East/West Street: Route 40
North/South Street: Hawes Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	28	671			431	23
Peak-Hour Factor, PHF	0.78	0.84			0.84	0.58
Peak-15 Minute Volume	9	200			128	10
Hourly Flow Rate, HFR	35	798			513	39
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				21	0	15
Peak Hour Factor, PHF				0.79	0.50	0.58
Peak-15 Minute Volume				7	0	6
Hourly Flow Rate, HFR				26	0	25
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		-5			-10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Marker Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Marker/Proposed Main Driveway
East/West Street: Route 40
North/South Street: Marker Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		620	9	7	455	
Peak-Hour Factor, PHF		0.94	0.67	0.50	0.94	
Hourly Flow Rate, HFR		659	13	14	484	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1 0		0 1		
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	3	0	11			
Peak Hour Factor, PHF	0.75	0.50	0.62			
Hourly Flow Rate, HFR	4	0	17			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		-5			3	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		14		21				
C(m) (vph)		914		373				
v/c		0.02		0.06				
95% queue length		0.05		0.18				
Control Delay		9.0		15.2				
LOS		A		C				
Approach Delay				15.2				
Approach LOS				C				

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Marker Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Marker/Proposed Main Driveway
East/West Street: Route 40
North/South Street: Marker Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		620	9	7	455	
Peak-Hour Factor, PHF		0.94	0.67	0.50	0.94	
Peak-15 Minute Volume		165	3	4	121	
Hourly Flow Rate, HFR		659	13	14	484	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	3	0	11			
Peak Hour Factor, PHF	0.75	0.50	0.62			
Peak-15 Minute Volume	1	0	4			
Hourly Flow Rate, HFR	4	0	17			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		-5			3	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Marker Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Marker/Proposed Main Driveway
East/West Street: Route 40
North/South Street: Marker Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		607	3	6	450	
Peak-Hour Factor, PHF		0.80	0.75	0.62	0.87	
Hourly Flow Rate, HFR		758	4	9	517	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4	0	6			
Peak Hour Factor, PHF	1.00	0.50	0.42			
Hourly Flow Rate, HFR	4	0	14			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		-5			3	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1	0			
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		9		18				
C(m) (vph)		846		315				
v/c		0.01		0.06				
95% queue length		0.03		0.18				
Control Delay		9.3		17.1				
OS		A		C				
Approach Delay				17.1				
Approach LOS				C				

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Marker Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Marker/Proposed Main Driveway
East/West Street: Route 40
North/South Street: Marker Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		607	3	6	450	
Peak-Hour Factor, PHF		0.80	0.75	0.62	0.87	
Peak-15 Minute Volume		190	1	2	129	
Hourly Flow Rate, HFR		758	4	9	517	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	4	0	6			
Peak Hour Factor, PHF	1.00	0.50	0.42			
Peak-15 Minute Volume	1	0	4			
Hourly Flow Rate, HFR	4	0	14			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		-5			3	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/Smith School Hse Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Smith School House Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	18	614			433	9
Peak-Hour Factor, PHF	0.67	0.94			0.94	0.67
Hourly Flow Rate, HFR	26	653			460	13
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				13	0	29
Peak Hour Factor, PHF				0.75	0.38	0.93
Hourly Flow Rate, HFR				17	0	31
Percent Heavy Vehicles				3	3	3
Percent Grade (%)					10	
Flared Approach: Exists?/Storage				/		No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	26						48	
C(m) (vph)	1084						356	
v/c	0.02						0.13	
95% queue length	0.07						0.46	
Control Delay	8.4						16.7	
LOS	A						C	
Approach Delay							16.7	
Approach LOS							C	

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Phone: Fax:
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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/Smith School Hse Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Smith School House Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	18	614			433	9
Peak-Hour Factor, PHF	0.67	0.94			0.94	0.67
Peak-15 Minute Volume	7	163			115	3
Hourly Flow Rate, HFR	26	653			460	13
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				13	0	29
Peak Hour Factor, PHF				0.75	0.38	0.93
Peak-15 Minute Volume				4	0	8
Hourly Flow Rate, HFR				17	0	31
Percent Heavy Vehicles				3	3	3
Percent Grade (%)					10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	TR
Agency/Co.:	McMillen Engineering
Date Performed:	109/2005
Analysis Time Period:	Saturday Peak Base
Intersection:	Route 40/Smith School Hse Road
Jurisdiction:	
Units: U. S. Customary	
Analysis Year:	2016
Project ID:	Route 40 and Smith School House Road Intersection
East/West Street:	Route 40
North/South Street:	Dinner Bell Road
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	15	554			442	11
Peak-Hour Factor, PHF	0.50	0.87			0.87	0.50
Hourly Flow Rate, HFR	30	636			508	22
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				9	0	13
Peak Hour Factor, PHF				0.40	0.38	0.60
Hourly Flow Rate, HFR				22	0	21
Percent Heavy Vehicles				3	3	3
Percent Grade (%)					10	
Flared Approach: Exists?/Storage				/		No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	30						43	
C(m) (vph)	1032						282	
v/c	0.03						0.15	
95% queue length	0.09						0.53	
Control Delay	8.6						20.0	
OS	A						C	
Approach Delay							20.0	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 109/2005
Analysis Time Period: Saturday Peak Base
Intersection: Route 40/Smith School Hse Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Smith School House Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	15	554			442	11
Peak-Hour Factor, PHF	0.50	0.87			0.87	0.50
Peak-15 Minute Volume	8	159			127	6
Hourly Flow Rate, HFR	30	636			508	22
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				9	0	13
Peak Hour Factor, PHF				0.40	0.38	0.60
Peak-15 Minute Volume				6	0	5
Hourly Flow Rate, HFR				22	0	21
Percent Heavy Vehicles				3	3	3
Percent Grade (%)					10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Dinner Bell Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Dinner Bell Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	29	559	52	15	396	42
Peak-Hour Factor, PHF	0.81	0.94	0.78	0.58	0.94	0.79
Hourly Flow Rate, HFR	35	594	66	25	421	53
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	29	8	18	40	3	17
Peak Hour Factor, PHF	0.81	0.58	0.67	0.75	0.38	0.63
Hourly Flow Rate, HFR	35	13	26	53	7	26
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	35	25		74			86	
C(m) (vph)	1083	923		191			174	
v/c	0.03	0.03		0.39			0.49	
95% queue length	0.10	0.08		1.70			2.41	
Control Delay	8.4	9.0		35.3			44.4	
LOS	A	A		E			E	
Approach Delay				35.3			44.4	
Approach LOS				E			E	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Weekday PM Base
Intersection: Route 40/ Dinner Bell Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Dinner Bell Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	29	559	52	15	396	42
Peak-Hour Factor, PHF	0.81	0.94	0.78	0.58	0.94	0.79
Peak-15 Minute Volume	9	149	17	6	105	13
Hourly Flow Rate, HFR	35	594	66	25	421	53
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	29	8	18	40	3	17
Peak Hour Factor, PHF	0.81	0.58	0.67	0.75	0.38	0.63
Peak-15 Minute Volume	9	3	7	13	2	7
Hourly Flow Rate, HFR	35	13	26	53	7	26
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/		No	/
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Dinner Bell Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Dinner Bell Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	21	554	31	10	376	17
Peak-Hour Factor, PHF	0.75	0.87	0.63	0.68	0.87	0.70
Hourly Flow Rate, HFR	28	636	49	14	432	24
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	59	2	17	18	3	17
Peak Hour Factor, PHF	0.84	0.50	0.42	0.50	0.75	0.62
Hourly Flow Rate, HFR	70	4	40	36	4	27
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/		No	/
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	28	14		114			67	
C(m) (vph)	1100	904		191			200	
v/c	0.03	0.02		0.60			0.34	
95% queue length	0.08	0.05		3.31			1.39	
Control Delay	8.4	9.0		48.4			31.8	
LOS	A	A		E			D	
Approach Delay				48.4			31.8	
Approach LOS				E			D	

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Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: TR
Agency/Co.: McMillen Engineering
Date Performed: 10/9/2005
Analysis Time Period: Saturday Base
Intersection: Route 40/ Dinner Bell Road
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2016
Project ID: Route 40 and Dinner Bell Road Intersection
East/West Street: Route 40
North/South Street: Dinner Bell Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume	21	554	31	10	376	17
Peak-Hour Factor, PHF	0.75	0.87	0.63	0.68	0.87	0.70
Peak-15 Minute Volume	7	159	12	4	108	6
Hourly Flow Rate, HFR	28	636	49	14	432	24
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	59	2	17	18	3	17
Peak Hour Factor, PHF	0.84	0.50	0.42	0.50	0.75	0.62
Peak-15 Minute Volume	18	1	10	9	1	7
Hourly Flow Rate, HFR	70	4	40	36	4	27
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/			No /
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

APPENDIX 4

CAPACITY ANALYSIS
(2016 DEVELOPED CONDITIONS)

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	RHH
Agency/Co.:	McMILLEN ENGINEERING
Date Performed:	11/23/2005
Analysis Time Period:	WEEKDAY PM PEAK DEVELOPED
Intersection:	SR40 / SR 381S
Jurisdiction:	WHARTON TOWNSHIP
Units: U. S. Customary	
Analysis Year:	2016
Project ID: 2005-319	
East/West Street:	ROUTE 40
North/South Street:	SR 381S
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		562	59	57	565	
Peak-Hour Factor, PHF		0.92	0.75	0.72	0.91	
Hourly Flow Rate, HFR		610	78	79	620	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1 0		0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	56	0	63			
Peak Hour Factor, PHF	0.71	1.00	1.00			
Hourly Flow Rate, HFR	78	0	63			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		79		141				
C(m) (vph)		901		197				
v/c		0.09		0.72				
95% queue length		0.29		4.57				
Control Delay		9.4		59.2				
LOS		A		F				
Approach Delay				59.2				
Approach LOS				F				

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Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SR 381S
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume		562	59	57	565	
Peak-Hour Factor, PHF		0.92	0.75	0.72	0.91	
Peak-15 Minute Volume		153	20	20	155	
Hourly Flow Rate, HFR		610	78	79	620	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	56	0	63			
Peak Hour Factor, PHF	0.71	1.00	1.00			
Peak-15 Minute Volume	20	0	16			
Hourly Flow Rate, HFR	78	0	63			
Percent Heavy Vehicles	3	3	3			
Percent Grade (%)		7			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SR 381S
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		618	52	55	412	
Peak-Hour Factor, PHF		0.84	0.65	0.74	0.84	
Hourly Flow Rate, HFR		735	80	74	490	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1 0		0 1		
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	34	0	75			
Peak Hour Factor, PHF	0.86	1.00	0.78			
Hourly Flow Rate, HFR	39	0	96			
Percent Heavy Vehicles	3	3	0			
Percent Grade (%)		7			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1 0				
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		74		135				
C(m) (vph)		808		257				
v/c		0.09		0.53				
95% queue length		0.30		2.80				
Control Delay		9.9		33.5				
LOS		A		D				
Approach Delay				33.5				
Approach LOS				D				

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Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SR 381S
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381S
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
olume		618	52	55	412	
Peak-Hour Factor, PHF		0.84	0.65	0.74	0.84	
Peak-15 Minute Volume		184	20	19	123	
Hourly Flow Rate, HFR		735	80	74	490	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	34	0	75			
Peak Hour Factor, PHF	0.86	1.00	0.78			
Peak-15 Minute Volume	10	0	24			
Hourly Flow Rate, HFR	39	0	96			
Percent Heavy Vehicles	3	3	0			
Percent Grade (%)		7			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	RHH
Agency/Co.:	McMILLEN ENGINEERING
Date Performed:	11/23/2005
Analysis Time Period:	WEEKDAY PM PEAK DEVELOPED
Intersection:	SR40 / SR 381N
Jurisdiction:	WHARTON TOWNSHIP
Units: U. S. Customary	
Analysis Year:	2016
Project ID: 2005-319	
East/West Street:	ROUTE 40
North/South Street:	SR 381N
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	67	558			569	19
Peak-Hour Factor, PHF	0.88	0.92			0.91	0.85
Hourly Flow Rate, HFR	76	606			625	22
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				46	0	53
Peak Hour Factor, PHF				0.71	1.00	0.68
Hourly Flow Rate, HFR				64	0	77
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-7	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	76						141	
C(m) (vph)	934						232	
v/c	0.08						0.61	
95% queue length	0.27						3.54	
Control Delay	9.2						42.0	
LOS	A						E	
Approach Delay							42.0	
Approach LOS							E	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SR 381N
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	67	558			569	19
Peak-Hour Factor, PHF	0.88	0.92			0.91	0.85
Peak-15 Minute Volume	19	152			156	6
Hourly Flow Rate, HFR	76	606			625	22
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				46	0	53
Peak Hour Factor, PHF				0.71	1.00	0.68
Peak-15 Minute Volume				16	0	19
Hourly Flow Rate, HFR				64	0	77
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-7	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SR 381N
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	89	604			413	62
Peak-Hour Factor, PHF	0.91	0.84			0.84	0.78
Hourly Flow Rate, HFR	97	719			491	79
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				44	0	54
Peak Hour Factor, PHF				0.70	1.00	0.77
Hourly Flow Rate, HFR				62	0	70
Percent Heavy Vehicles				3	0	3
Percent Grade (%)		0			-7	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	97						132	
C(m) (vph)	997						221	
v/c	0.10						0.60	
95% queue length	0.32						3.41	
Control Delay	9.0						42.9	
OS	A						E	
Approach Delay							42.9	
Approach LOS							E	

HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SR 381N
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SR 381N
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	89	604			413	62
Peak-Hour Factor, PHF	0.91	0.84			0.84	0.78
Peak-15 Minute Volume	24	180			123	20
Hourly Flow Rate, HFR	97	719			491	79
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				44	0	54
Peak Hour Factor, PHF				0.70	1.00	0.77
Peak-15 Minute Volume				16	0	18
Hourly Flow Rate, HFR				62	0	70
Percent Heavy Vehicles				3	0	3
Percent Grade (%)		0			-7	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / HAWES ROAD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: HAWES ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	23	581			411	41
Peak-Hour Factor, PHF	0.66	0.92			0.91	0.66
Hourly Flow Rate, HFR	34	631			451	62
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				41	0	46
Peak Hour Factor, PHF				0.62	1.00	0.66
Hourly Flow Rate, HFR				66	0	69
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-10	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	34						135	
C(m) (vph)	1047						304	
v/c	0.03						0.44	
95% queue length	0.10						2.17	
Control Delay	8.6						26.0	
OS	A						D	
Approach Delay							26.0	
Approach LOS							D	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / HAWES ROAD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: HAWES ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	23	581			411	41
Peak-Hour Factor, PHF	0.66	0.92			0.91	0.66
Peak-15 Minute Volume	9	158			113	16
Hourly Flow Rate, HFR	34	631			451	62
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				41	0	46
Peak Hour Factor, PHF				0.62	1.00	0.66
Peak-15 Minute Volume				17	0	17
Hourly Flow Rate, HFR				66	0	69
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

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TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / HAWES ROAD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: HAWES ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	28	649			400	23
Peak-Hour Factor, PHF	0.78	0.84			0.84	0.58
Hourly Flow Rate, HFR	35	772			476	39
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				21	0	15
Peak Hour Factor, PHF				0.79	1.00	0.58
Hourly Flow Rate, HFR				26	0	25
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-10	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	35						51	
C(m) (vph)	1046						251	
v/c	0.03						0.20	
95% queue length	0.10						0.74	
Control Delay	8.6						23.0	
LOS	A						C	
Approach Delay							23.0	
Approach LOS							C	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / HAWES ROAD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: HAWES ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	28	649			400	23
Peak-Hour Factor, PHF	0.78	0.84			0.84	0.58
Peak-15 Minute Volume	9	193			119	10
Hourly Flow Rate, HFR	35	772			476	39
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				21	0	15
Peak Hour Factor, PHF				0.79	1.00	0.58
Peak-15 Minute Volume				7	0	6
Hourly Flow Rate, HFR				26	0	25
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:	RHH
Agency/Co.:	McMILLEN ENGINEERING
Date Performed:	11/23/2005
Analysis Time Period:	WEEKDAY PM PEAK DEVELOPED
Intersection:	SR40 / SEC. DRIVE
Jurisdiction:	WHARTON TOWNSHIP
Units: U. S. Customary	
Analysis Year:	2016
Project ID: 2005-319	
East/West Street:	ROUTE 40
North/South Street:	SECONDARY DRIVEWAY
Intersection Orientation: EW	Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	31	591			427	15
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	34	656			474	16
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				14	0	28
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				15	0	31
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-8	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	34						46	
C(m) (vph)	1068						356	
v/c	0.03						0.13	
95% queue length	0.10						0.44	
Control Delay	8.5						16.6	
OS	A						C	
Approach Delay							16.6	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SEC. DRIVE
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SECONDARY DRIVEWAY
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	31	591			427	15
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Peak-15 Minute Volume	9	164			119	4
Hourly Flow Rate, HFR	34	656			474	16
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		*No*			*No*	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				14	0	28
Peak Hour Factor, PHF				0.90	0.90	0.90
Peak-15 Minute Volume				4	0	8
Hourly Flow Rate, HFR				15	0	31
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-8	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SEC. DRIVE
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SECONDARY DRIVEWAY
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	34	636			484	17
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	37	706			537	18
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				15	0	30
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				16	0	33
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-8	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	37						49	
C(m) (vph)	1010						310	
v/c	0.04						0.16	
95% queue length	0.11						0.55	
Control Delay	8.7						18.8	
LOS	A						C	
Approach Delay							18.8	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SEC. DRIVE
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SECONDARY DRIVEWAY
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	34	636			484	17
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Peak-15 Minute Volume	9	177			134	5
Hourly Flow Rate, HFR	37	706			537	18
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				15	0	30
Peak Hour Factor, PHF				0.90	0.90	0.90
Peak-15 Minute Volume				4	0	8
Hourly Flow Rate, HFR				16	0	33
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			-8	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Signalized Intersections Release 5.2

Analyst: RHH
Agency: McMILLEN ENGINEERING
Date: 12/5/2005
Period: WEEKDAY PM PEAK DEVELOPED
Project ID: 2005-319
E/W St: ROUTE 40

Inter.: ROUTE 40/MAIN DRIVE
Area Type: All other areas
Jurisd:
Year : 2016

N/S St: MAIN DRIVE/MARKER ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Volume	62	546	9	7	383	47	3	0	11	42	0	56
Lane Width	10.0	11.0		10.0	11.0			10.0			12.0	16.0
RTOR Vol			2			12			3			14

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru		A				Thru	A			
	Right		A				Right	A			
	Peds						Peds				
WB	Left	A				SB	Left	A			
	Thru		A				Thru	A			
	Right		A				Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0	33.0					12.0			
Yellow		4.0	4.0					4.0			
All Red		2.0	2.0					2.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	151	1511	0.46	0.10	31.9	C		
TR	775	1644	0.79	0.47	21.3	C	22.4	C
Westbound								
L	159	1588	0.05	0.10	28.6	C		
TR	806	1710	0.58	0.47	14.5	B	14.7	B
Northbound								
LTR	242	1411	0.05	0.17	24.3	C	24.3	C
Southbound								
LT	215	1255	0.22	0.17	25.5	C	25.2	C
R	305	1777	0.15	0.17	24.9	C		

Intersection Delay = 19.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	RHH
Agency/Co.:	McMILLEN ENGINEERING
Date Performed:	12/5/2005
Analysis Time Period:	WEEKDAY PM PEAK DEVELOPED
Intersection:	ROUTE 40/MAIN DRIVE
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2016

Project ID: 2005-319
E/W St: ROUTE 40 N/S St: MAIN DRIVE/MARKER ROAD

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	62	546	9	7	383	47	3	0	11	42	0	56
% Heavy Veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PK 15 Vol	17	152	3	2	106	13	1	0	3	12	0	16
Hi Ln Vol												
% Grade		5			-5			-5			0	
Ideal Sat	1800	1800		1800	1800			1800			1800	1900
ParkExist												
NumPark												
No. Lanes	1	1	0	1	1	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Lane Width	10.0	11.0		10.0	11.0			10.0			12.0	16.0
RTOR Vol			2			12			3			14
Adj Flow	69	615		8	465			12			47	47
%InSharedLn												
Prop LTs		0.000			0.000			0.250			1.000	
Prop RTs		0.013			0.084			0.750			0.000	1.000
Peds	Bikes	0			0			0			0	
Buses	0	0		0	0			0			0	0
%InProtPhase												

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Arriv. Type	3	3		3	3			3			3	3
Init Ext.	3.0	3.0		3.0	3.0			3.0			3.0	3.0
I Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Ext of g	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Ped Min g		3.2			3.2			3.2			3.2	

HCS+: Signalized Intersections Release 5.2

Analyst: RHH
Agency: McMILLEN ENGINEERING
Date: 12/5/2005
Period: SATURDAY AM PEAK DEVELOPED
Project ID: 2005-319
E/W St: ROUTE 40

Inter.: ROUTE 40/MAIN DRIVE
Area Type: All other areas
Jurisd:
Year : 2016
N/S St: MAIN DRIVE/MARKER ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Volume	68	498	3	6	346	51	4	0	6	45	0	60
Lane Width	10.0	11.0		10.0	11.0			10.0			12.0	16.0
RTOR Vol			1			13			2			15

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left A			
Thru		A			Thru A			
Right		A			Right A			
Peds					Peds			
WB Left	A				SB Left A			
Thru		A			Thru A			
Right		A			Right A			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	7.0	33.0			12.0			
Yellow	4.0	4.0			4.0			
All Red	2.0	2.0			2.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	151	1511	0.50	0.10	32.5	C		
TR	776	1646	0.72	0.47	17.9	B	19.7	B
Westbound								
L	159	1588	0.04	0.10	28.6	C		
TR	804	1706	0.53	0.47	13.7	B	13.9	B
Northbound								
LTR	236	1378	0.03	0.17	24.2	C	24.2	C
Southbound								
LT	216	1260	0.23	0.17	25.6	C	25.3	C
R	305	1777	0.16	0.17	25.0	C		

Intersection Delay = 18.1 (sec/veh) Intersection LOS = B

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	RHH
Agency/Co.:	McMILLEN ENGINEERING
Date Performed:	12/5/2005
Analysis Time Period:	SATURDAY AM PEAK DEVELOPED
Intersection:	ROUTE 40/MAIN DRIVE
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2016

Project ID: 2005-319
E/W St: ROUTE 40 N/S St: MAIN DRIVE/MARKER ROAD

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	68	498	3	6	346	51	4	0	6	45	0	60
% Heavy Veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PK 15 Vol	19	138	1	2	96	14	1	0	2	13	0	17
Hi Ln Vol												
% Grade		5			-5			-5			0	
Ideal Sat	1800	1800		1800	1800			1800			1800	1900
ParkExist												
NumPark												
No. Lanes	1	1	0	1	1	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Lane Width	10.0	11.0		10.0	11.0			10.0			12.0	16.0
RTOR Vol			1			13			2			15
Adj Flow	76	555		7	426			8			50	50
%InSharedLn												
Prop LTs		0.000			0.000			0.500			1.000	
Prop RTs		0.004			0.099			0.500			0.000	1.000
Peds Bikes		0			0			0			0	
Buses	0	0		0	0			0			0	0
%InProtPhase												

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Arriv. Type	3	3		3	3			3			3	3
Unit Ext.	3.0	3.0		3.0	3.0			3.0			3.0	3.0
I Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Ext of g	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Ped Min g		3.2			3.2			3.2			3.2	

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SMITH SCHOOL
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SMITH SCHOOL HOUSE RD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	18	610			435	9
Peak-Hour Factor, PHF	0.67	0.94			0.94	0.67
Hourly Flow Rate, HFR	26	648			462	13
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				13	0	29
Peak Hour Factor, PHF				0.75	0.90	0.93
Hourly Flow Rate, HFR				17	0	31
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			10	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	26						48	
C(m) (vph)	1082						356	
v/c	0.02						0.13	
95% queue length	0.07						0.46	
Control Delay	8.4						16.7	
LOS	A						C	
Approach Delay							16.7	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.2

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / SMITH SCHOOL
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SMITH SCHOOL HOUSE RD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	18	610			435	9
Peak-Hour Factor, PHF	0.67	0.94			0.94	0.67
Peak-15 Minute Volume	7	162			116	3
Hourly Flow Rate, HFR	26	648			462	13
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				13	0	29
Peak Hour Factor, PHF				0.75	0.90	0.93
Peak-15 Minute Volume				4	0	8
Hourly Flow Rate, HFR				17	0	31
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SMITH SCHOOL
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SMITH SCHOOL HOUSE RD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	15	534			426	11
Peak-Hour Factor, PHF	0.50	0.87			0.87	0.50
Hourly Flow Rate, HFR	30	613			489	22
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				9	0	13
Peak Hour Factor, PHF				0.40	0.90	0.60
Hourly Flow Rate, HFR				22	0	21
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			10	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	30						43	
C(m) (vph)	1049						297	
v/c	0.03						0.14	
95% queue length	0.09						0.50	
Control Delay	8.5						19.2	
OS	A						C	
Approach Delay							19.2	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.2

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / SMITH SCHOOL
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: SMITH SCHOOL HOUSE RD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	15	534			426	11
Peak-Hour Factor, PHF	0.50	0.87			0.87	0.50
Peak-15 Minute Volume	8	153			122	6
Hourly Flow Rate, HFR	30	613			489	22
Percent Heavy Vehicles	3	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				9	0	13
Peak Hour Factor, PHF				0.40	0.90	0.60
Peak-15 Minute Volume				6	0	5
Hourly Flow Rate, HFR				22	0	21
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			10	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / DINNER BELL RD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: DINNER BELL ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	29	555	52	15	398	42
Peak-Hour Factor, PHF	0.81	0.94	0.78	0.58	0.94	0.79
Hourly Flow Rate, HFR	35	590	66	25	423	53
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	29	8	18	40	3	17
Peak Hour Factor, PHF	0.81	0.58	0.67	0.75	0.38	0.63
Hourly Flow Rate, HFR	35	13	26	53	7	26
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/		No	/
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	35	25		74			86	
C(m) (vph)	1081	927		192			175	
v/c	0.03	0.03		0.39			0.49	
95% queue length	0.10	0.08		1.69			2.39	
Control Delay	8.4	9.0		35.0+			44.0	
LOS	A	A		E			E	
Approach Delay				35.0+			44.0	
Approach LOS				E			E	

HCS+: Unsignalized Intersections Release 5.2

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: RHH
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: WEEKDAY PM PEAK DEVELOPED
Intersection: SR40 / DINNER BELL RD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: DINNER BELL ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	29	555	52	15	398	42
Peak-Hour Factor, PHF	0.81	0.94	0.78	0.58	0.94	0.79
Peak-15 Minute Volume	9	148	17	6	106	13
Hourly Flow Rate, HFR	35	590	66	25	423	53
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?	No			No		

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	29	8	18	40	3	17
Peak Hour Factor, PHF	0.81	0.58	0.67	0.75	0.38	0.63
Peak-15 Minute Volume	9	3	7	13	2	7
Hourly Flow Rate, HFR	35	13	26	53	7	26
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/		No	/
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / DINNER BELL RD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: DINNER BELL ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	21	534	31	10	360	17
Peak-Hour Factor, PHF	0.75	0.87	0.63	0.68	0.87	0.70
Hourly Flow Rate, HFR	28	613	49	14	413	24
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	59	2	17	18	3	17
Peak Hour Factor, PHF	0.84	0.50	0.42	0.50	0.75	0.62
Hourly Flow Rate, HFR	70	4	40	36	4	27
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	28	14		114			67	
C(m) (vph)	1117	922		204			214	
v/c	0.03	0.02		0.56			0.31	
95% queue length	0.08	0.05		3.00			1.28	
Control Delay	8.3	9.0		42.9			29.3	
LOS	A	A		E			D	
Approach Delay				42.9			29.3	
Approach LOS				E			D	

HCS+: Unsignalized Intersections Release 5.2

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: McMILLEN ENGINEERING
Date Performed: 11/23/2005
Analysis Time Period: SATURDAY PEAK DEVELOPED
Intersection: SR40 / DINNER BELL RD
Jurisdiction: WHARTON TOWNSHIP
Units: U. S. Customary
Analysis Year: 2016
Project ID: 2005-319
East/West Street: ROUTE 40
North/South Street: DINNER BELL ROAD
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	21	534	31	10	360	17
Peak-Hour Factor, PHF	0.75	0.87	0.63	0.68	0.87	0.70
Peak-15 Minute Volume	7	153	12	4	103	6
Hourly Flow Rate, HFR	28	613	49	14	413	24
Percent Heavy Vehicles	3	--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	59	2	17	18	3	17
Peak Hour Factor, PHF	0.84	0.50	0.42	0.50	0.75	0.62
Peak-15 Minute Volume	18	1	10	9	1	7
Hourly Flow Rate, HFR	70	4	40	36	4	27
Percent Heavy Vehicles	3	3	3	3	3	3
Percent Grade (%)		-4			3	
Flared Approach: Exists?/Storage		No	/			No /
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Pedestrian Volumes and Adjustments

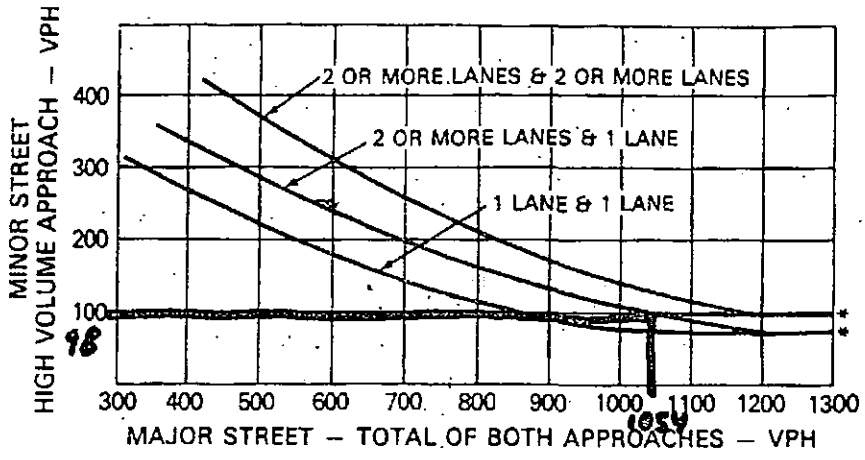
Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

APPENDIX 5

SIGNAL WARRANT ANALYSIS

PEAK HOUR VOLUME WARRANT

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

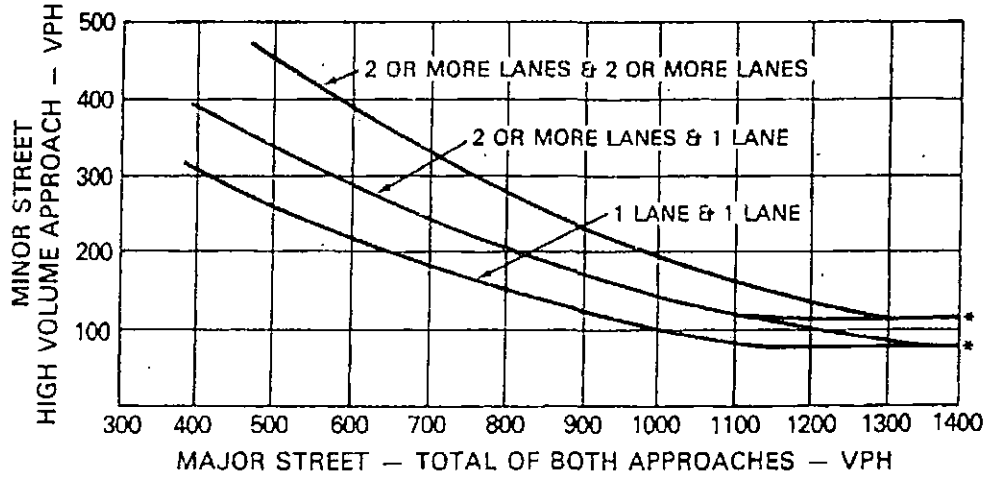


*NOTE: 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

(xii) Four-hour volume. This warrant is satisfied when the following requirements exist:

(A) For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only), all fall above the curve in the following graph for the existing combination of approach lanes:

FOUR HOUR VOLUME WARRANT



*NOTE: 115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.